# 1980 AIAA Journal Index

*Note:* Beginning this year, each of the journals published by AIAA will contain its own Index in the final issue of the year. In addition, a Combined Index, referencing all of the papers published during 1980 in the six AIAA journals and the *Progress in Astronautics and Aeronautics* books, will be offered for sale early in 1981 as the start of a new service that not only will combine the several indexes but also will cumulate them from year to year.

## How to Use the Index

In the Subject Index, pages 1548-1555, each technical paper is listed under a maximum of three appropriate headings. Note the number in boldface type following each paper title, and use that number to locate the paper in the Chronological Index.

The Author Index, pages 1556-1557, lists all authors associated with a given technical paper. The locating numbers are identical to those in the Subject Index.

The Chronological Index, pages 1558-1567, lists all papers by their unique code numbers. This listing contains titles, authors and their affiliations, and volume, issue number, and page where the paper appeared. It also gives the AIAA paper number, if any, on which the article was based, as well as the "CP" or conference volume number if the paper was published in a bound collection of meetings papers.

Comments, Replies, and Errata are listed directly beneath the paper to which they refer. If the paper to which they refer was published prior to 1980, that paper also will appear in both the Subject and Chronological Indexes. Authors of Comments also are listed in the Author Index.

# Subject Index


## Aircraft Technology, Conventional, STOL/VTOL

### *Aerodynamics*

Time-Dependent Difference Theory for Noise Propagation in a Two-Dimensional Duct J80-287
Numerical Solution of the Azimuthal-Invariant Thin-Layer Navier-Stokes Equations J80-277
Approximate Calculation of Vortex Trajectories of Slender Bodies at Incidence J80-270
Propagation of Supersonic Fan Noise in a Nonuniform Medium J80-265
Progress in Finite-Volume Calculations for Wing-Fuselage Combinations J80-250
Lifting and Nonlifting Kernel Functions for Cascade and Isolated Airfoils J80-240
High Mach Number Dynamic Stability of Pointed Cones at Small Angles of Attack J80-239
Harmonic Linearization Method for High-Intensity Sound in Two-Dimensional Lined Ducts J80-227
Transonic Flutter Analysis of a Rectangular Wing with Conventional Airfoil Sections J80-224
Shock-Free Wing Design J80-223
Technique for Developing Design Tools from the Analysis Methods of Computational Aerodynamics J80-208
Downwash Impingement J80-196
Flowfield Model for a Rectangular Planform Wing beyond Stall J80-190
Reformulation of Possio's Kernel with Application to Unsteady Wind Tunnel Interference J80-179
Supersonic Base Flow Problem in Presence of an Exhaust Jet J80-169
Computational Simulation of Turbulent Vortex Merger and Decay J80-166
Vector Processor Algorithms for Transonic Flow Calculations J80-149
Laminar Separation, Transition, and Turbulent Reattachment near the Leading Edge of Airfoils J80-143
Determining Size Distribution of Liquid Nitrogen Particles Flowing in an Airstream by Scattered Light Detection J80-121
Design of Flat Plate Leading Edges to Avoid Flow Separation J80-106
Analysis of Two-Dimensional Incompressible Flows by a Subsurface Panel Method J80-094
The Delta Wing in Oscillatory Gusts J80-087
Slender Wing Theory for Nonuniform Stream J80-070
Three-Dimensional Flow Over Wings with Leading-Edge Vortex Separation J80-069
Experimental Study of Turbulent Flow near a Suction Tube J80-040
Efficient Transonic Shock-Free Wing Redesign Procedure Using a Fictitious Gas Method J80-029
The Supersonic Triplet-A New Aerodynamic Panel Singularity with Directional Properties J80-028
Rational New Approach to the Response of an Aircraft Encountering Atmospheric Turbulence J80-027
Simple Analytical Modeling of Supersonic Flow around Blunt Axisymmetrical Bodies J80-023
Boundary-Layer-Induced Secondary Flows on Wing-Body Configurations J80-011
Calculation of Laminar Separation Bubbles and Their Effect on Airfoil Performance J80-006
Transonic Flow Past a Symmetrical Airfoil —Inviscid and Turbulent Flow Properties J80-005
Correlation Technique for Predicting Attached Turbulent Boundary-Layer/Flap Interaction Pressures J80-003
Hysteresis Zone or Locus-Aerodynamics of Bulbous Based Bodies at Low Speeds J79-004

### *Configuration Design*

Shock-Free Wing Design J80-223
Downwash Impingement J80-196
Efficient Transonic Shock-Free Wing Redesign Procedure Using a Fictitious Gas Method J80-029

### *Noise*

Propagation of Supersonic Fan Noise in a Nonuniform Medium J80-265
Influence of Propeller Design Parameters on Far-Field harmonic Noise in Forward Flight J80-254
Helicoidal Surface Theory for Harmonic Noise of Propellers in the Far Field J80-231
Harmonic Linearization Method for High-Intensity Sound in Two-Dimensional Lined Ducts J80-227
Effects of Inflow Distortion Profiles on Fan Tone Noise J80-172
Bandwidth Attenuation with a Folded Cavity Liner in a Circular Flow Duct J80-146
Direct Correlation of Noise and Flow of a Jet Using Laser Doppler J80-145
Unified Aerodynamic-Acoustic Theory for a Thin Rectangular Wing Encountering a Gust J80-117
Sound Power Spectrum of Shock-Free Jets J80-113
Comparison of Measured and Predicted Impedance at Grazing Incidence J80-091
Experimental Study of Sound Radiation from a Subsonic Jet in Simulated Motion J80-077
Do Locally Reacting Acoustic Liners Always Behave as They Should? J80-073
Master Plan for Prediction of Vehicle Interior Noise J80-068
Effect of Temperature on Surface Noise J80-060
Strouhal Number Influence on Flight Effects on Jet Noise Radiated from Convecting Quadrupoles J80-059
Correlation of Combustor Rig Sound Power Data and Theoretical Basis of Results J80-049
Radiation of an Acoustic Source Near the Trailing Edge of a Wing in Forward Motion J80-048
Separation of Core Noise and Jet Noise J80-047

### *Propeller and Rotor Systems*

Influence of Propeller Design Parameters on Far-Field harmonic Noise in Forward Flight J80-254
Helicoidal Surface Theory for Harmonic Noise of Propellers in the Far Field J80-231

### *Simulation*

Effect of Specific Heat Ratio on Two-Dimensional Transonic Aerodynamics J80-199
Experimental Study of Sound Radiation from a Subsonic Jet in Simulated Motion J80-077

### *Structural Design (including Loads)*

Static Stability Analysis of Elastically Restrained Structures under Follower Forces J80-084

### *Structural Materials*

Shear Modulus of New Sandwich Cores Made of Superplastic Sheet J80-133

### *Testing, Flight and Ground*

Proportional Optimal Orthogonalization of Measured Modes J80-164
Influence of Freestream Turbulence on Boundary-Layer Development J80-004
Resonance Frequencies of Ventilated Wind Tunnels J80-002
New Technique for Reducing Test Section Noise in Supersonic Wind Tunnels J80-001

### *Vibration*

Flutter Analysis of Missile Control Surfaces Containing Structural Nonlinearities J80-236
Response of Duffing Oscillator to One Half-Cycle Sine Pulse J80-219
Proportional Optimal Orthogonalization of Measured Modes J80-164
Optimal Design of Large Structures for Damage Tolerance J80-100
Fatigue Life Estimates of Mistuned Blades Via a Stochastic Approach J80-055
Effect of Shear Deformation and Rotatory Inertia on the Stability of Beck's and Leipholz's Columns J80-025
Rapid Calculation of the Resonance Frequency for Rotationally Restrained Rectangular Plates J79-003
Direct Solutions for Strum-Liouville Systems with Discontinuous Coefficients J79-002

## Energy

### *Combustion*

Pulsed Raman Measurements in a Stratified Charge Engine J80-022

### *Cryogenics*

Determining Size Distribution of Liquid Nitrogen Particles Flowing in an Airstream by Scattered Light Detection J80-121

### *Magnetohydrodynamics*

Slag and Other Liquid Behavior on Vertical Surface at Near-Freezing Temperature J80-264
Study of the Insulating Wall Boundary Layer in a Faraday MHD Generator J80-210
MHD Boundary Layer of the Seeded Combustion Gas near Cold Electrodes J80-008

### *Nuclear Fission*

Analysis of the $UF_6$-Xe Direct Nuclear-Pumped Laser J80-290

### *Reciprocating Machinery*

Pulsed Raman Measurements in a Stratified Charge Engine J80-022

### *Rotating Machinery*

Turbulence Characteristics in the Near Wake of a Compressor Rotor Blade J80-260
Efficient Generation of Body-Fitted Coordinates for Cascades Using Multigrid J80-088
Coupled Bending-Torsion Flutter in Cascades J80-036

### *Wind Power*

Coupled Rotor/Tower Aeroelastic Analysis of Large Horizontal Axis Wind Turbines J80-214
Unsteady Potential Aerodynamics of Rotors with Applications to Horizontal-Axis Windmills J80-071
Analysis of Neutrally Stable Atmospheric Flow over a Two-Dimensional Forward-Facing Step J80-007

## Fluid Dynamics

### *Aeroacoustics*

Sound Radiation From Ducts: Comparison of Admittance Values J80-301
Time-Dependent Difference Theory for Noise Propagation in a Two-Dimensional Duct J80-287
Acoustic Resonances and Sound Scattering by a Shear Layer J80-283
Propagation of Supersonic Fan Noise in a Nonuniform Medium J80-265
Influence of Propeller Design Parameters on Far-Field harmonic Noise in Forward Flight J80-254
Helicoidal Surface Theory for Harmonic Noise of Propellers in the Far Field J80-231
Harmonic Linearization Method for High-Intensity Sound in Two-Dimensional Lined Ducts J80-227
Response of Duffing Oscillator to One Half-Cycle Sine Pulse J80-219
Effects of Inflow Distortion Profiles on Fan Tone Noise J80-172
Wind Tunnel Study of Acoustical Disturbance Effect on Controlled Laminar Flow J80-151
Bandwidth Attenuation with a Folded Cavity Liner in a Circular Flow Duct J80-146
Direct Correlation of Noise and Flow of a Jet Using Laser Doppler J80-145
Pressure Wave Suppression for a Pulsed Chemical Laser J80-120
Unified Aerodynamic-Acoustic Theory for a Thin Rectangular Wing Encountering a Gust J80-117
Sound Power Spectrum of Shock-Free Jets J80-113
Acoustic Suppression in a Pulsed Laser System J80-099
Noise Radiation from the Side Edges of Flaps J80-097
Transmission of Sound Through Nonuniform Circular Ducts with Compressible Mean Flows J80-093
Applications of Velocity Potential Function to Acoustic Duct Propagation Using Finite Elements J80-092
Comparison of Measured and Predicted Impedance at Grazing Incidence J80-091
Discrete Noise Spectrum Generated by an Acoustically Excited Jet J80-078
Experimental Study of Sound Radiation from a Subsonic Jet in Simulated Motion J80-077
Do Locally Reacting Acoustic Liners Always Behave as They Should? J80-073
Master Plan for Prediction of Vehicle Interior Noise J80-068
Effect of Temperature on Surface Noise J80-060
Strouhal Number Influence on Flight Effects on Jet Noise Radiated from Convecting Quadrupoles J80-059
Correlation of Combustor Rig Sound Power Data and Theoretical Basis of Results J80-049
Radiation of an Acoustic Source Near the Trailing Edge of a Wing in Forward Motion J80-048
Separation of Core Noise and Jet Noise J80-047
Calculation of Transonic Aileron Buzz J80-046

### *Boundary Layers and Convective Heat Transfer-Laminar*

Separation of Laminar Boundary Layer Induced by Aerodynamic Interference J80-300
Flow in Streamwise Corners of Arbitrary Angle J80-278
Direct and Inverse Calculation of the Laminar Boundary-Layer Solution J80-266
Three-Layer Interactive Method for Computing Supersonic Laminar Separated Flows J80-255
Numerical Solution of Supersonic Laminar Flow over an Inclined Body of Revolution J80-175
Boundary Layer of Density-Stratified Fluids with a Suspension of Particles J80-159
Design of Flat Plate Leading Edges to Avoid Flow Separation J80-106
Transport Property Correlations for $H_2$-He Gas Mixtures at Temperatures of 1000-25,000 K J80-082
Mathematical Criterion for Unsteady Boundary-Layer Separation J80-058
Boundary-Layer-Induced Secondary Flows on Wing-Body Configurations J80-011
Optimal Nodal Point Distribution for Improved Accuracy in Computational Fluid Dynamics J80-010
Exact Similar Solution for an Axisymmetric Laminar Boundary Layer on a Circular Cone J79-001

### *Boundary Layers and Convective Heat Transfer-Turbulent*

Investigation of a Three-Dimensional Shock Wave Separated Turbulent Boundary Layer J80-288
Turbulent Boundary-Layer Calculations in Adverse Pressure Gradient Flows J80-267
Slag and Other Liquid Behavior on Vertical Surface at Near-Freezing Temperature J80-264
Convective Ignition of Propellant Cylinders in a Developing Flowfield J80-261
Aerothermochemical Analysis of Erosive Burning in a Laboratory Solid-Rocket Motor J80-259
Improved Sensing Element for Skin-Friction Balance Measurements J80-258
Marker Particle Velocity Perturbations in Compressible Flows over a Wavy Wall J80-242
Adverse Pressure Gradient Effects on Supersonic Boundary-Layer Turbulence J80-228
Study of the Insulating Wall Boundary Layer in a Faraday MHD Generator J80-210
Characteristics of a Mixing Layer of a Two-Dimensional Turbulent Jet J80-204
Mach and Reynolds Number Effects on a Shock-Wave/Boundary-Layer Interaction J80-195
Experimental Investigations on Effectiveness, Heat Transfer Coefficient, and Turbulence of Film Cooling J80-173
Separation Pressure of a Turbulent Boundary Layer in Transonic Interactions J80-161
Investigation of Three-Dimensional Shock/Boundary-Layer Interactions at Swept Compression Corners J80-148
Three-Component Velocity Measurements in an Upper Surface Blowing Configuration J80-129
Measurements and Model Validation for Composite Propellants Burning under Cross Flow of Gases J80-122
Turbulence Modeling for Unsteady Transonic Flows J80-089
Effects of Adverse Pressure Gradient on the Incompressible Reattaching Flow over a Rearward-Facing Step J80-062
Turbulent Flows Produced by Perforated Plate Generators in Wind Tunnels J80-050
Transonic Flow Past a Symmetrical Airfoil —Inviscid and Turbulent Flow Properties J80-005
Influence of Freestream Turbulence on Boundary-Layer Development J80-004

### *Boundary-Layer Stability and Transition*

Visualization of Flow Instabilities on a Rotating Disk J80-299
Comparison of Methods for Prediction of Transition by Stability Analysis J80-289
Study of Viscous Crossflow Effects on Circular Cylinders at High Reynolds Numbers J80-206
Stability of the Boundary Layer on a Swept Wing with Wall Cooling J80-201
Review of the Influence of Cooled Walls on Boundary-Layer Transition J80-192
Wind Tunnel Study of Acoustical Disturbance Effect on Controlled Laminar Flow J80-151
Instability Process in Low Reynolds Number Supersonic Jets J80-150
Laminar Separation, Transition, and Turbulent Reattachment near the Leading Edge of Airfoils J80-143
Design of Flat Plate Leading Edges to Avoid Flow Separation J80-106
Stability Aspects of Diverging Subsonic Flow J80-095
Stability of Three-Dimensional Boundary Layers J80-075
On Stability and Transition in Three-Dimensional Flows J80-074
Nonlinear Stability of Parallel Flows By High-Order Amplitude Expansions J80-045
Experimental Study of Turbulent Flow near a Suction Tube J80-040
Effect of Dissipation and Dispersion on Slowly Varying Wavetrains J80-030
Resonant Wave Interactions on a Swept Wing J80-024
Calculation of Laminar Separation Bubbles and Their Effect on Airfoil Performance J80-006

### *Computational Methods*


Thin-Layer Approximation for Three-Dimensional Supersonic Corner Flows J80-302
Numerical Solutions of Transonic Flows By Parametric Differentiation and Integral Equation Techniques J80-298
Further Observations on the Strained Coordinate Method for Transonic Flows J80-296
Calculation of the Flow Properties of a Confined Kerosene-Spray Flame J80-291
Comparison of Methods for Prediction of Transition by Stability Analysis J80-289
Investigation of a Three-Dimensional Shock Wave Separated Turbulent Boundary Layer J80-288
Fast, Conservative Algorithm for Solving the Transonic Full-Potential Equation J80-281
Numerical Simulation of Steady Supersonic Viscous Flow J80-280
Flow Computations in Inlets at Incidence Using a Shock Fitting Bicharacteristic Method J80-279
Numerical Solution of the Azimuthal-Invariant Thin-Layer Navier-Stokes Equations J80-277
Navier-Stokes Solution of the Turbulent Flowfield about an Isolated Airfoil J80-276
Turbulent Boundary-Layer Calculations in Adverse Pressure Gradient Flows J80-267
Direct and Inverse Calculation of the Laminar Boundary-Layer Solution J80-266
Three-Layer Interactive Method for Computing Supersonic Laminar Separated Flows J80-255
Progress in Finite-Volume Calculations for Wing-Fuselage Combinations J80-250
Marker Particle Velocity Perturbations in Compressible Flows over a Wavy Wall J80-242
Adaptive Grid Method for Problems in Fluid Mechanics and Heat Transfer J80-230
Prediction of Two- and Three-Dimensional Asymmetrical Turbulent Wakes, Including Curvature and Rotation Effects J80-229
Multilevel Adaptive Computations in Fluid Dynamics J80-225
Technique for Developing Design Tools from the Analysis Methods of Computational Aerodynamics J80-208
Performance of a Vectorized Three-Dimensional Navier-Stokes Code on the CRAY-1 Computer J80-207
Effect of Specific Heat Ratio on Two-Dimensional Transonic Aerodynamics J80-199
Mach and Reynolds Number Effects on a Shock-Wave/Boundary-Layer Interaction J80-195
Improved Version of LTRAN2 for Unsteady Transonic Flow Computations J80-191
Reformulation of Possio's Kernel with Application to Unsteady Wind Tunnel Interference J80-179
Navier-Stokes Solutions for Spin-Up in a Filled Cylinder J80-176
Numerical Solution of Supersonic Laminar Flow over an Inclined Body of Revolution J80-175
Pseudo-Direct Solution to the Boundary-Layer Equations for Separated Flow J80-170
Vector Processor Algorithms for Transonic Flow Calculations J80-149
Bandwidth Attenuation with a Folded Cavity Liner in a Circular Flow Duct J80-146
Time-Dependent Method to Solve the Inverse Problem for Internal Flows J80-144
Direct Control of the Grid Point Distribution in Meshes Generated by Elliptic Equations J80-119
Careful Numerical Study of Flowfields about Symmetric External Conical Corners J80-118
Complete Supersonic Flowfields over Blunt Bodies in a Generalized Orthogonal Coordinate System J80-112
Stability Aspects of Diverging Subsonic Flow J80-095
Analysis of Two-Dimensional Incompressible Flows by a Subsurface Panel Method J80-094
Efficient Generation of Body-Fitted Coordinates for Cascades Using Multigrid J80-088
Aerodynamic Interference Effects on Oscillating Airfoils with Controls in Ventilated Wind Tunnels J80-076
On Stability and Transition in Three-Dimensional Flows J80-074
Unsteady Potential Aerodynamics of Rotors with Applications to Horizontal-Axis Windmills J80-071
Three-Dimensional Flow Over Wings with Leading-Edge Vortex Separation J80-069
Numerical Analysis of Flowfields Generated by Accelerating Flames J80-053
Model of Transverse Fuel Injection in Supersonic Combustors J80-052
Calculation of Transonic Aileron Buzz J80-046
Implicit Finite-Difference Simulations of Three-Dimensional Compressible Flow J80-031
Calculation of Two-Dimensional Potential Cascade Flow J80-019
Investigation of Crossflow Shocks on Delta Wings in Supersonic Flow J80-015
Supersonic, Inviscid, Conical Corner Flowfields J80-014
Numerical Study of Strong Slot Injection into a Supersonic Laminar Boundary Layer J80-013
Transonic Wind Tunnel Interference Assessment—Axisymmetric Flows J80-012
Optimal Nodal Point Distribution for Improved Accuracy in Computational Fluid Dynamics J80-010


### *Hydrodynamics*


The Turbulence Structure in the Axisymmetric Free Mixing Layer J80-286
Sullivan's Two-Celled Vortex J80-243
Marker Particle Velocity Perturbations in Compressible Flows over a Wavy Wall J80-242
Navier-Stokes Solutions for Spin-Up in a Filled Cylinder J80-176
Surface Disintegration and Bubble Formation in Vertically Vibrated Liquid Column J80-079
Effect of Dissipation and Dispersion on Slowly Varying Wavetrains J80-030
Pulsed Laser-Induced Shattering of Water Drops J80-017


### *Jets, Wakes, and Viscid-Inviscid Flow Interactions*


Instantaneous Velocity Measurements in a Periodically Pulsed Plane Turbulent Jet J80-297
The Turbulence Structure in the Axisymmetric Free Mixing Layer J80-286
Acoustic Resonances and Sound Scattering by a Shear Layer J80-283
Numerical Simulation of Near Wakes Utilizing a Relaxation Turbulence Model J80-282
Approximate Calculation of Vortex Trajectories of Slender Bodies at Incidence J80-270
Turbulence Characteristics in the Near Wake of a Compressor Rotor Blade J80-260
Three-Layer Interactive Method for Computing Supersonic Laminar Separated Flows J80-255
Symmetric Body Vortex Wake Characteristics in Supersonic Flow J80-251
Modeling the Plasma Near-Wakes J80-241
Prediction of Two- and Three-Dimensional Asymmetrical Turbulent Wakes, Including Curvature and Rotation Effects J80-229
Aerothermodynamic Aspects of an Axisymmetric Resonance Tube J80-217
Trailing-Edge Flows at High Reynolds Number J80-205
Characteristics of a Mixing Layer of a Two-Dimensional Turbulent Jet J80-204
Turbulent Wake of a Thin, Flat Plate J80-203
Downwash Impingement J80-196
Asymptotic Features of Shock-Wave Boundary-Layer Interaction J80-194
Development and Structure of a Rectangular Jet in a Multiple Jet Configuration J80-178
Karman Vortex Shedding and the Effect of Body Motion J80-177
Experimental Investigations on Effectiveness, Heat Transfer Coefficient, and Turbulence of Film Cooling J80-173
Pseudo-Direct Solution to the Boundary-Layer Equations for Separated Flow J80-170
Supersonic Base Flow Problem in Presence of an Exhaust Jet J80-169
Computation of a Supersonic Flow Past an Axisymmetric Nozzle Boattail with Jet Exhaust J80-168
Approximate Analysis of Axisymmetric Supersonic Base Flows with Injection J80-167
Computational Simulation of Turbulent Vortex Merger and Decay J80-166
Separation Pressure of a Turbulent Boundary Layer in Transonic Interactions J80-161
Instability Process in Low Reynolds Number Supersonic Jets J80-150
Wave Phenomena in Liquid Jet Breakup in a Supersonic Crossflow J80-147
Turbulent Vortices in Stratified Fluids J80-142
Vortex Shedding from Square Plates Perpendicular to a Ground Plane J80-130
Three-Component Velocity Measurements in an Upper Surface Blowing Configuration J80-129
Analysis of Radar Returns from a Rocket Plume J80-128
Effect of Density on Noise Radiation from Subsonic Inverted Velocity Profile Jets J80-116
Sound Power Spectrum of Shock-Free Jets J80-113
Complete Supersonic Flowfields over Blunt Bodies in a Generalized Orthogonal Coordinate System J80-112
Mach Number and Temperature Effects on Jets J80-111
Free Jet Expansion in a Rapidly Rotating Gas J80-083
Discrete Noise Spectrum Generated by an Acoustically Excited Jet J80-078
Strouhal Number Influence on Flight Effects on Jet Noise Radiated from Convecting Quadrupoles J80-059
Turbulent Flows Produced by Perforated Plate Generators in Wind Tunnels J80-050

Calculation of Separated Turbulent Flows on Axisymmetric Afterbodies Including Exhaust Plume Effects J80-044
Study of Coherent Structures in Axisymmetric Jets Using an Optical Technique J80-042
Radiation from Particles Injected into Hypersonic Flowfields J80-039
Experimental Investigation of Heat and Mass Diffusion in a Porous Tube-Generated Flowfield J80-038
Computations of Jet Impingement on a Flat Surface J80-032
Boundary-Layer-Induced Secondary Flows on Wing-Body Configurations J80-011
Correlation Technique for Predicting Attached Turbulent Boundary-Layer/Flap Interaction Pressures J80-003
Criterion for Vortex Periodicity in Cylinder Wakes J79-006
Hysteresis Zone or Locus-Aerodynamics of Bulbous Based Bodies at Low Speeds J79-004

### *Multiphase Flows*

One-and Two-Phase Nozzle Flows J80-285
Two-Phase Mach Number Description for Equilibrium Duct Flow of Nitrogen J80-256
Boundary Layer of Density-Stratified Fluids with a Suspension of Particles J80-159
Wave Phenomena in Liquid Jet Breakup in a Supersonic Crossflow J80-147
Effect of Injection Angle on Liquid Injection in Supersonic Flow J80-115
Recent Experiments on Heterogeneous Detonation Waves J80-109
Pulsed Laser-Induced Shattering of Water Drops J80-017

### *Nonsteady Aerodynamics*

Instantaneous Velocity Measurements in a Periodically Pulsed Plane Turbulent Jet J80-297
Transonic Shock-Wave/Boundary-Layer Interactions on an Oscillating Airfoil J80-253
High Mach Number Dynamic Stability of Pointed Cones at Small Angles of Attack J80-239
Measurements of Unsteady Vortex Flowfields J80-226
Aerothermodynamic Aspects of an Axisymmetric Resonance Tube J80-217
Study of Viscous Crossflow Effects on Circular Cylinders at High Reynolds Numbers J80-206
Indicial Approach to Harmonic Perturbations in Transonic Flow J80-193
Improved Version of LTRAN2 for Unsteady Transonic Flow Computations J80-191
Large Incidence Hypersonic Similitude and Oscillating Nonplanar Wedges J80-189
Reformulation of Possio's Kernel with Application to Unsteady Wind Tunnel Interference J80-179
Karman Vortex Shedding and the Effect of Body Motion J80-177
Effects of Inflow Distortion Profiles on Fan Tone Noise J80-172
Analyses of Pressure Oscillations in an Open Cavity J80-171
Aerodynamic Coefficients in Generalized Unsteady Thin Airfoil Theory J80-160
Boundary Layer of Density-Stratified Fluids with a Suspension of Particles J80-159
Vortex Shedding from Square Plates Perpendicular to a Ground Plane J80-130
Pressure Wave Suppression for a Pulsed Chemical Laser J80-120
Unified Aerodynamic-Acoustic Theory for a Thin Rectangular Wing Encountering a Gust J80-117
Unsteady Thin Airfoil Theory for Transonic Flows with Embedded Shocks J80-114
Noise Radiation from the Side Edges of Flaps J80-097
Subsonic Flow Past an Oscillating Cascade with Finite Mean Flow Deflection J80-096
Trailing Edge Conditions for Unsteady Flows at High Reduced Frequency J80-090
Turbulence Modeling for Unsteady Transonic Flows J80-089
The Delta Wing in Oscillatory Gusts J80-087
Aerodynamic Interference Effects on Oscillating Airfoils with Controls in Ventilated Wind Tunnels J80-076
Oscillations of the Supersonic Flow Downstream of an Abrupt Increase in Duct Cross Section J80-072
Unsteady Potential Aerodynamics of Rotors with Applications to Horizontal-Axis Windmills J80-071
On The Fundamental Solution for a Cascade J80-064
Mathematical Criterion for Unsteady Boundary-Layer Separation J80-058
Calculation of Transonic Aileron Buzz J80-046
Solar Pulsations J80-033
Pulsed Laser-Generated Impulse on a Surface in Supersonic Flow J80-016
Experimental Studies of the Production of Converging Cylindrical Shock Waves J80-009
Resonance Frequencies of Ventilated Wind Tunnels J80-002
Criterion for Vortex Periodicity in Cylinder Wakes J79-006

### *Nozzle and Channel Flow*

Instantaneous Velocity Measurements in a Periodically Pulsed Plane Turbulent Jet J80-297
One-and Two-Phase Nozzle Flows J80-285
Limiting Particle Streamline of Gas Particle Mixtures in Axially Symmetric Nozzles J80-268
Two-Phase Mach Number Description for Equilibrium Duct Flow of Nitrogen J80-256
Numerical Simulation of Multistream Nozzle Flows J80-209
Performance of a Vectorized Three-Dimensional Navier-Stokes Code on the CRAY-1 Computer J80-207
Measurements and Axisymmetric Model of Spatial Correlations in Turbulent Pipe Flow J80-174
Time-Dependent Method to Solve the Inverse Problem for Internal Flows J80-144
Three-Component Velocity Measurements in an Upper Surface Blowing Configuration J80-129
Effects of Swirl on the Subcritical Performance of Convergent Nozzles J80-107
Oscillations of the Supersonic Flow Downstream of an Abrupt Increase in Duct Cross Section J80-072
Experimental Study of Turbulent Flow near a Suction Tube J80-040
Flowfield Computations in Rotating Propulsive Nozzles J80-018
Influence of Freestream Turbulence on Boundary-Layer Development J80-004
New Technique for Reducing Test Section Noise in Supersonic Wind Tunnels J80-001

### *Plasmadynamics and MHD*

Modeling the Plasma Near-Wakes J80-241
Kinetics of a $CO_2$ Nuclear Pumped Laser J80-232
Study of the Insulating Wall Boundary Layer in a Faraday MHD Generator J80-210
Propagation of Weak MHD Waves in Steady Hypersonic Flows with Radiation J80-162
Electron Collection by Blunt Probes in the Lower Ionosphere J80-152
MHD Boundary Layer of the Seeded Combustion Gas near Cold Electrodes J80-008

### *Radiatively Coupled Flows and Heat Transfer*

Saturation Effects on Stagnation Radiative Heating for the Jupiter Probe J80-216
Propagation of Weak MHD Waves in Steady Hypersonic Flows with Radiation J80-162
Flowfield Calculations Past an Entry Probe with Ablated Nose Shape J80-132
Transport Property Correlations for $H_2$-He Gas Mixtures at Temperatures of 1000-25,000 K J80-082

### *Rarefied Flows*

Modeling the Plasma Near-Wakes J80-241
Determination of Forces on Arbitrary Concave Bodies in High- Speed Rarefied Gases J80-200
Analysis of the Strong Interaction Problem with Slip and Temperature-Jump Effects J80-158
Free-Molecule Normal-Momentum Transfer at Satellite Surfaces J80-108
Radiation from Particles Injected into Hypersonic Flowfields J80-039

### *Reactive Flows*

Aerothermochemical Analysis of Erosive Burning in a Laboratory Solid-Rocket Motor J80-259
Modeling of a cw Chemical Laser with Annular Unstable Resonator J80-233
Shock Tunnel Measurement of Ionization Rates in Hydrogen J80-086
Influence of Chemical Kinetics and Unmixedness on Burning in Supersonic Hydrogen Flames J80-035
Local Turbulence Properties in Flames from Time-Averaged Raman Spectroscopy Measurements J80-034

### *Shock Waves and Detonations*

Decay of Transverse Acoustic Waves in a Pulsed Gas Laser J80-257
Interaction of Weak Shock Waves with Screens and Honeycombs J80-252
Evolution of a Detonation Wave in a Cloud of Fuel Droplets: Part II. Influence of Fuel Droplets J80-234
Steady Oblique Shock-Wave Reflections in Perfect and Imperfect Monatomic and Diatomic Gases J80-218
Aerothermodynamic Aspects of an Axisymmetric Resonance Tube J80-217
Evolution of a Detonation Wave in a Cloud of Fuel Droplets: Part I. Influence of Igniting Explosion J80-212
Analytical Solution of Double-Mach Reflection J80-202
Asymptotic Features of Shock-Wave Boundary-Layer Interaction J80-194

Chain Reaction cw HF Laser with Stationary Shock Initiation J80-180
Measurement of Shock Waves around a Delta-Wing Semicone J80-157
Investigation of Three-Dimensional Shock/Boundary-Layer Interactions at Swept Compression Corners J80-148
Recent Experiments on Heterogeneous Detonation Waves J80-109
Numerical Analysis of Flowfields Generated by Accelerating Flames J80-053
Pulsed Laser-Generated Impulse on a Surface in Supersonic Flow J80-016
Investigation of Crossflow Shocks on Delta Wings in Supersonic Flow J80-015
Experimental Studies of the Production of Converging Cylindrical Shock Waves J80-009

### *Subsonic Flow*

Limiting Particle Streamline of Gas Particle Mixtures in Axially Symmetric Nozzles J80-268
Lifting and Nonlifting Kernel Functions for Cascade and Isolated Airfoils J80-240
Multilevel Adaptive Computations in Fluid Dynamics J80-225
Similarity Rule for Sidewall Boundary-Layer Effect in Two-Dimensional Wind Tunnels J80-221
Study of Viscous Crossflow Effects on Circular Cylinders at High Reynolds Numbers J80-206
Trailing-Edge Flows at High Reynolds Number J80-205
Flowfield Model for a Rectangular Planform Wing beyond Stall J80-190
Karman Vortex Shedding and the Effect of Body Motion J80-177
Measurements and Axisymmetric Model of Spatial Correlations in Turbulent Pipe Flow J80-174
Laminar Separation, Transition, and Turbulent Reattachment near the Leading Edge of Airfoils J80-143
Mach Number and Temperature Effects on Jets J80-111
Axisymmetric Transonic Flow Past Slender Bodies by an Integral Equation Method J80-110
Effects of Swirl on the Subcritical Performance of Convergent Nozzles J80-107
Subsonic Flow Past an Oscillating Cascade with Finite Mean Flow Deflection J80-096
Stability Aspects of Diverging Subsonic Flow J80-095
Aerodynamic Interference Effects on Oscillating Airfoils with Controls in Ventilated Wind Tunnels J80-076
Three-Dimensional Flow Over Wings with Leading-Edge Vortex Separation J80-069
Effects of Adverse Pressure Gradient on the Incompressible Reattaching Flow over a Rearward-Facing Step J80-062
Calculation of Two-Dimensional Potential Cascade Flow J80-019

### *Supersonic and Hypersonic Flow*

Thin-Layer Approximation for Three-Dimensional Supersonic Corner Flows J80-302
Investigation of a Three-Dimensional Shock Wave Separated Turbulent Boundary Layer J80-288
Numerical Simulation of Steady Supersonic Viscous Flow J80-280
Flow Computations in Inlets at Incidence Using a Shock Fitting Bicharacteristic Method J80-279
Turbulent Boundary-Layer Calculations in Adverse Pressure Gradient Flows J80-267
Improved Sensing Element for Skin-Friction Balance Measurements J80-258
Symmetric Body Vortex Wake Characteristics in Supersonic Flow J80-251
High Mach Number Dynamic Stability of Pointed Cones at Small Angles of Attack J80-239
Adverse Pressure Gradient Effects on Supersonic Boundary-Layer Turbulence J80-228
Analytical Solution of Double-Mach Reflection J80-202
Asymptotic Features of Shock-Wave Boundary-Layer Interaction J80-194
Large Incidence Hypersonic Similitude and Oscillating Nonplanar Wedges J80-189
Numerical Solution of Supersonic Laminar Flow over an Inclined Body of Revolution J80-175
Supersonic Base Flow Problem in Presence of an Exhaust Jet J80-169
Approximate Analysis of Axisymmetric Supersonic Base Flows with Injection J80-167
Propagation of Weak MHD Waves in Steady Hypersonic Flows with Radiation J80-162
Analysis of the Strong Interaction Problem with Slip and Temperature-Jump Effects J80-158
Measurement of Shock Waves around a Delta-Wing Semicone J80-157
Instability Process in Low Reynolds Number Supersonic Jets J80-150
Investigation of Three-Dimensional Shock/Boundary-Layer Interactions at Swept Compression Corners J80-148
Careful Numerical Study of Flowfields about Symmetric External Conical Corners J80-118
Mach Number and Temperature Effects on Jets J80-111
Flow Patterns Near a Conical Sonic Line J80-043
The Supersonic Triplet-A New Aerodynamic Panel Singularity with Directional Properties J80-028
Simple Analytical Modeling of Supersonic Flow around Blunt Axisymmetrical Bodies J80-023
Flowfield Computations in Rotating Propulsive Nozzles J80-018
Investigation of Crossflow Shocks on Delta Wings in Supersonic Flow J80-015
Supersonic, Inviscid, Conical Corner Flowfields J80-014
Numerical Study of Strong Slot Injection into a Supersonic Laminar Boundary Layer J80-013
New Technique for Reducing Test Section Noise in Supersonic Wind Tunnels J80-001

### *Transonic Flow*

Numerical Solutions of Transonic Flows By Parametric Differentiation and Integral Equation Techniques J80-298
Further Observations on the Strained Coordinate Method for Transonic Flows J80-296
One-and Two-Phase Nozzle Flows J80-285
Fast, Conservative Algorithm for Solving the Transonic Full-Potential Equation J80-281
Numerical Solution of the Azimuthal-Invariant Thin-Layer Navier-Stokes Equations J80-277
Transonic Shock-Wave/Boundary-Layer Interactions on an Oscillating Airfoil J80-253
Progress in Finite-Volume Calculations for Wing-Fuselage Combinations J80-250
Multilevel Adaptive Computations in Fluid Dynamics J80-225
Transonic Flutter Analysis of a Rectangular Wing with Conventional Airfoil Sections J80-224
Shock-Free Wing Design J80-223
Similarity Rule for Sidewall Boundary-Layer Effect in Two-Dimensional Wind Tunnels J80-221
Low-Frequency and Small Perturbation Equation for Transonic Flow Past Wings J80-220
Numerical Simulation of Multistream Nozzle Flows J80-209
Technique for Developing Design Tools from the Analysis Methods of Computational Aerodynamics J80-208
Trailing-Edge Flows at High Reynolds Number J80-205
Effect of Specific Heat Ratio on Two-Dimensional Transonic Aerodynamics J80-199
Mach and Reynolds Number Effects on a Shock-Wave/Boundary-Layer Interaction J80-195
Indicial Approach to Harmonic Perturbations in Transonic Flow J80-193
Improved Version of LTRAN2 for Unsteady Transonic Flow Computations J80-191
Transonic Axial Compressor using Laser Anemometry and Unsteady Pressure Measurements J80-183
Separation Pressure of a Turbulent Boundary Layer in Transonic Interactions J80-161
Vector Processor Algorithms for Transonic Flow Calculations J80-149
Time-Dependent Method to Solve the Inverse Problem for Internal Flows J80-144
Transonic Small Disturbance Theory with Strong Shock Waves J80-131
Careful Numerical Study of Flowfields about Symmetric External Conical Corners J80-118
Unsteady Thin Airfoil Theory for Transonic Flows with Embedded Shocks J80-114
Axisymmetric Transonic Flow Past Slender Bodies by an Integral Equation Method J80-110
Turbulence Modeling for Unsteady Transonic Flows J80-089
Oscillations of the Supersonic Flow Downstream of an Abrupt Increase in Duct Cross Section J80-072
Observations on the Strained Coordinate Method for Transonic Flows J80-061
Flow Patterns Near a Conical Sonic Line J80-043
Efficient Transonic Shock-Free Wing Redesign Procedure Using a Fictitious Gas Method J80-029
Transonic Wind Tunnel Interference Assessment—Axisymmetric Flows J80-012
Transonic Flow Past a Symmetrical Airfoil—Inviscid and Turbulent Flow Properties J80-005

### *Viscous Nonboundary-Layer Flows*

Navier-Stokes Solution of the Turbulent Flowfield about an Isolated Airfoil J80-276
Flow near the Intersection of a Wall and Multiple Dividing Streamlines J80-269
Sullivan's Two-Celled Vortex J80-243
Navier-Stokes Solutions for Spin-Up in a Filled Cylinder J80-176
Measurements and Axisymmetric Model of Spatial Correlations in Turbulent Pipe Flow J80-174

Analyses of Pressure Oscillations in an Open Cavity J80-171
Computation of a Supersonic Flow Past an Axisymmetric Nozzle Boattail with Jet Exhaust J80-168
Turbulent Vortices in Stratified Fluids J80-142
Flowfield Calculations Past an Entry Probe with Ablated Nose Shape J80-132
Complete Supersonic Flowfields over Blunt Bodies in a Generalized Orthogonal Coordinate System J80-112
Nonlinear Stability of Parallel Flows By High-Order Amplitude Expansions J80-045
Implicit Finite-Difference Simulations of Three-Dimensional Compressible Flow J80-031

### *Wave Motion and Sloshing*

Acoustic Resonances and Sound Scattering by a Shear Layer J80-283
Wave Phenomena in Liquid Jet Breakup in a Supersonic Crossflow J80-147
Surface Disintegration and Bubble Formation in Vertically Vibrated Liquid Column J80-079
Solar Pulsations J80-033
Effect of Dissipation and Dispersion on Slowly Varying Wavetrains J80-030

## Interdisciplinary Topics

### *Analytical and Numerical Methods*

Sound Radiation From Ducts: Comparison of Admittance Values J80-301
Discrete-Continuous Variable Structural Synthesis using Dual Methods J80-294
Structural Synthesis by Combining Approximation Concepts and Dual Methods J80-237
Response of Duffing Oscillator to One Half-Cycle Sine Pulse J80-219
Elastic-Plastic Analysis of Fatigue Crack Closure in Modes I and II J80-213
Creep Linearization of Nonaxisymmetrically Heated Cylinders J80-165
Transonic Small Disturbance Theory with Strong Shock Waves J80-131
Direct Control of the Grid Point Distribution in Meshes Generated by Elliptic Equations J80-119
Optimal Design of Large Structures for Damage Tolerance J80-100
Acoustic Suppression in a Pulsed Laser System J80-099
Observations on the Strained Coordinate Method for Transonic Flows J80-061
Explicit High-Order Finite-Difference Analysis of Rotationally Symmetric Shells J80-054
Nonlinear Stability of Parallel Flows By High-Order Amplitude Expansions J80-045
The Supersonic Triplet-A New Aerodynamic Panel Singularity with Directional Properties J80-028
Methods of Design Sensitivity Analysis in Structural Optimization J79-005

### *Atmospheric and Space Sciences*

Plasma Quench Investigations: Tungsten-Oxide Quenchants J80-188
Electron Collection by Blunt Probes in the Lower Ionosphere J80-152
Solar Pulsations J80-033
Rational New Approach to the Response of an Aircraft Encountering Atmospheric Turbulence J80-027
Analysis of Neutrally Stable Atmospheric Flow over a Two-Dimensional Forward-Facing Step J80-007

### *Lasers and Laser Applications*

Analysis of the $UF_6$-Xe Direct Nuclear-Pumped Laser J80-290
Decay of Transverse Acoustic Waves in a Pulsed Gas Laser J80-257
Interaction of Weak Shock Waves with Screens and Honeycombs J80-252
Modeling of a cw Chemical Laser with Annular Unstable Resonator J80-233
Kinetics of a $CO_2$ Nuclear Pumped Laser J80-232
Chain Reaction cw HF Laser with Stationary Shock Initiation J80-180
Single Pulse Laser Irradiation of Fiberglass J80-163
Pressure Wave Suppression for a Pulsed Chemical Laser J80-120
Acoustic Suppression in a Pulsed Laser System J80-099
Thermal Coupling of 2.8-μm Laser Radiation to Metal Targets J80-085
Laser Radiation-Gasdynamic Coupling in the $SF^6$-Air Laminar Boundary Layer J80-057
Pulsed Laser-Induced Shattering of Water Drops J80-017
Pulsed Laser-Generated Impulse on a Surface in Supersonic Flow J80-016

### *Research Facilities and Instrumentation*

Improved Sensing Element for Skin-Friction Balance Measurements J80-258
Similarity Rule for Sidewall Boundary-Layer Effect in Two-Dimensional Wind Tunnels J80-221
Wind Tunnel Study of Acoustical Disturbance Effect on Controlled Laminar Flow J80-151
Turbulent Flows Produced by Perforated Plate Generators in Wind Tunnels J80-050
Study of Coherent Structures in Axisymmetric Jets Using an Optical Technique J80-042
Jupiter Entry Simulation Using a High-Performance Arc Heater J80-021

### *Safety*

Analysis of Neutrally Stable Atmospheric Flow over a Two-Dimensional Forward-Facing Step J80-007

### *Satellite Communication Systems (including Terrestrial Stations)*

Nonlinear Stress-Strain Law for Metallic Meshes J80-104

### *Space Processing*

Processing of Glass in Space J80-098
Surface Disintegration and Bubble Formation in Vertically Vibrated Liquid Column J80-079

## Launch Vehicle and Missile (LV/M) Technology

### *Aerodynamics*

Symmetric Body Vortex Wake Characteristics in Supersonic Flow J80-251
Determination of Forces on Arbitrary Concave Bodies in High- Speed Rarefied Gases J80-200

### *Dynamics and Control*

Hysteresis Zone or Locus-Aerodynamics of Bulbous Based Bodies at Low Speeds J79-004

## Marine Technology

### *Vessel Design (including Loads)*

Optimal Design of Ring Stiffened Cylindrical Shells Using Multiple Stiffener Sizes J80-197

### *Vessel Vibration*

Dynamics of Submerged Cylindrical Shells with Eccentric Stiffening J80-155

## Propulsion

### *Airbreathing Propulsion*

Flow Computations in Inlets at Incidence Using a Shock Fitting Bicharacteristic Method J80-279
Turbulence Characteristics in the Near Wake of a Compressor Rotor Blade J80-260
Prediction of Two- and Three-Dimensional Asymmetrical Turbulent Wakes, Including Curvature and Rotation Effects J80-229
Ignition of Liquid Fuel Jets in a Supersonic Air Stream J80-211
Numerical Simulation of Multistream Nozzle Flows J80-209
Transonic Axial Compressor using Laser Anemometry and Unsteady Pressure Measurements J80-183
Computation of a Supersonic Flow Past an Axisymmetric Nozzle Boattail with Jet Exhaust J80-168
Experimental Study of the Flowfield of a Two-Dimensional Premixed Turbulent Flame J80-153
Determining Size Distribution of Liquid Nitrogen Particles Flowing in an Airstream by Scattered Light Detection J80-121
Effect of Injection Angle on Liquid Injection in Supersonic Flow J80-115
Subsonic Flow Past an Oscillating Cascade with Finite Mean Flow Deflection J80-096
Scaling and Performance of Dump Combustors with Transverse Gas Jets J80-080
On The Fundamental Solution for a Cascade J80-064
Model of Transverse Fuel Injection in Supersonic Combustors J80-052
Coupled Bending-Torsion Flutter in Cascades J80-036
Calculation of Two-Dimensional Potential Cascade Flow J80-019
Supersonic, Inviscid, Conical Corner Flowfields J80-014

### *Combustion and Combustor Designs*

Calculation of the Flow Properties of a Confined Kerosene-Spray Flame J80-291
Ignition of Liquid Fuel Jets in a Supersonic Air Stream J80-211
Model for Double-Base Propellant Combustion J80-184
Analytical Model of High-Pressure Burning Rates in a Transient Environment J80-182
Thermal Decomposition and Combustion Studies on Potassium Perchlorate/Polystyrene Propellant Systems J80-181
Single Pulse Laser Irradiation of Fiberglass J80-163

Experimental Study of the Flowfield of a Two-Dimensional Premixed Turbulent Flame J80-153
Radiative Transfer of Energy in a Cylindrical Enclosure with Heat Generation J80-134
Model of Transverse Fuel Injection in Supersonic Combustors J80-052
Review of Composite Propellant Burn Rate Modeling J80-051
Correlation of Combustor Rig Sound Power Data and Theoretical Basis of Results J80-049

***Combustion Stability, Ignition, and Detonation***

Calculation of the Flow Properties of a Confined Kerosene-Spray Flame J80-291
Convective Ignition of Propellant Cylinders in a Developing Flowfield J80-261
Evolution of a Detonation Wave in a Cloud of Fuel Droplets: Part II. Influence of Fuel Droplets J80-234
Evolution of a Detonation Wave in a Cloud of Fuel Droplets: Part I. Influence of Igniting Explosion J80-212
Ignition of Liquid Fuel Jets in a Supersonic Air Stream J80-211
Model for Double-Base Propellant Combustion J80-184
Analytical Model of High-Pressure Burning Rates in a Transient Environment J80-182
Ignition of Solid Propellant Crack Tip under Rapid Pressurization J80-154
Scaling and Performance of Dump Combustors with Transverse Gas Jets J80-080
Numerical Analysis of Flowfields Generated by Accelerating Flames J80-053
Influence of Chemical Kinetics and Unmixedness on Burning in Supersonic Hydrogen Flames J80-035
Local Turbulence Properties in Flames from Time-Averaged Raman Spectroscopy Measurements J80-034

***Engine Performance***

On the Determination of the Polytropic Specific Heat J80-135
Scaling and Performance of Dump Combustors with Transverse Gas Jets J80-080

***Fuels and Propellants, Properties of***

Action of Transition Metal Oxides on Composite Solid Propellants J80-271
Model for Double-Base Propellant Combustion J80-184
Analytical Model of High-Pressure Burning Rates in a Transient Environment J80-182
Review of Composite Propellant Burn Rate Modeling J80-051

***Solid and Hybrid Rocket Engines***

Limiting Particle Streamline of Gas Particle Mixtures in Axially Symmetric Nozzles J80-268
Aerothermochemical Analysis of Erosive Burning in a Laboratory Solid-Rocket Motor J80-259
Comparison of Methods for the Calculation of Rocket Nozzle Wall Temperatures J80-156
Measurements and Model Validation for Composite Propellants Burning under Cross Flow of Gases J80-122
Review of Composite Propellant Burn Rate Modeling J80-051
Flowfield Computations in Rotating Propulsive Nozzles J80-018

## Spacecraft Technology

***Configurational and Structural Design (including Loads)***

Generalized Modal Shock Spectra Method for Spacecraft Loads Analysis J80-186

***Dynamics and Control***

Nonlinear Vibration Phenomena in Films of Solar Arrays J80-123

***Entry Vehicle Testing, Flight and Ground***

Shock Tunnel Measurement of Ionization Rates in Hydrogen J80-086
Jupiter Entry Simulation Using a High-Performance Arc Heater J80-021

***Temperature Control***

Solar Flux Incident on an Orbiting Surface after Reflection from a Planet J80-136

## Structural Mechanics and Materials

***Aeroelasticity and Hydroelasticity***

Transonic Shock-Wave/Boundary-Layer Interactions on an Oscillating Airfoil J80-253
Lifting and Nonlifting Kernel Functions for Cascade and Isolated Airfoils J80-240
Flutter Analysis of Missile Control Surfaces Containing Structural Nonlinearities J80-236
Transonic Flutter Analysis of a Rectangular Wing with Conventional Airfoil Sections J80-224
Coupled Rotor/Tower Aeroelastic Analysis of Large Horizontal Axis Wind Turbines J80-214
Aerodynamic Coefficients in Generalized Unsteady Thin Airfoil Theory J80-160
On The Fundamental Solution for a Cascade J80-064
Resonance Frequencies of Ventilated Wind Tunnels J80-002

***Materials, Properties of***

Effect of Load Sequence on the Statistical Fatigue of Composites J80-295
Stresses in Double-Lap Joints Bonded with a Viscoelastic Adhesive: Part II. Parametric Study and Joint Design J80-263
Stresses in Double-Lap Joints Bonded with a Viscoelastic Adhesive: Part I. Theory and Experimental Corroboration J80-235
Shear Modulus of New Sandwich Cores Made of Superplastic Sheet J80-133
Nonlinear Stress-Strain Law for Metallic Meshes J80-104
The Cracked Shear Panel J80-056

***Structural Composite Materials***

Effect of Load Sequence on the Statistical Fatigue of Composites J80-295
Static Strength Prediction of Bolted Joint in Composite Material J80-262
Assumed Stress Finite Element Analysis of Through-Cracks in Angle-Ply Laminates J80-215
Modeling Nonlinear Deformation of Carbon-Carbon Composite Materials J80-187
Shear Modulus of New Sandwich Cores Made of Superplastic Sheet J80-133
Strength Predictions of Composite Laminates with Unloaded Fastener Holes J80-103
Effect of Prebuckling Deformations on Buckling of Laminated Composite Circular Cylindrical Shells J80-020
Bond Thickness Effects upon Stresses In Single-Lap Adhesive Joints J78-001

***Structural Design***

Discrete-Continuous Variable Structural Synthesis using Dual Methods J80-294
Differential and Difference Sensitivities of Natural Frequencies and Mode Shapes of Mechanical Structures J80-293
Stresses in Double-Lap Joints Bonded with a Viscoelastic Adhesive: Part II. Parametric Study and Joint Design J80-263
Static Strength Prediction of Bolted Joint in Composite Material J80-262
Influence of Nonlinear Adhesive Behavior on Analysis of Cracked Adhesively Bonded Structures J80-245
Structural Synthesis by Combining Approximation Concepts and Dual Methods J80-237
Elastic-Plastic Analysis of Fatigue Crack Closure in Modes I and II J80-213
Optimal Design of Ring Stiffened Cylindrical Shells Using Multiple Stiffener Sizes J80-197
Generalized Modal Shock Spectra Method for Spacecraft Loads Analysis J80-186
Elastic Constants for Superplastically Formed/Diffusion-Bonded Sandwich Structures J80-185
Creep Linearization of Nonaxisymmetrically Heated Cylinders J80-165
Nonlinear Vibration Phenomena in Films of Solar Arrays J80-123
Strength Predictions of Composite Laminates with Unloaded Fastener Holes J80-103
Strength of Initially Wavy Lattice Columns J80-102
Optimal Design of Large Structures for Damage Tolerance J80-100
Reduced Basis Technique for Nonlinear Analysis of Structures J80-081
Rational New Approach to the Response of an Aircraft Encountering Atmospheric Turbulence J80-027
Stress Analysis of a Plate Containing Two Circular Holes Having Tangential Stresses J80-026
Methods of Design Sensitivity Analysis in Structural Optimization J79-005
Rapid Calculation of the Resonance Frequency for Rotationally Restrained Rectangular Plates J79-003
Bond Thickness Effects upon Stresses In Single-Lap Adhesive Joints J78-001

***Structural Durability (including Fatigue and Fracture)***

Effect of Load Sequence on the Statistical Fatigue of Composites J80-295
Influence of Nonlinear Adhesive Behavior on Analysis of Cracked Adhesively Bonded Structures J80-245
Assumed Stress Finite Element Analysis of Through-Cracks in Angle-Ply Laminates J80-215
Elastic-Plastic Analysis of Fatigue Crack Closure in Modes I and II J80-213
The Cracked Shear Panel J80-056

***Structural Dynamics***

Differential and Difference Sensitivities of Natural Frequencies and Mode Shapes of Mechanical Structures J80-293
Stiffness Matrix Correction from Incomplete Test Data J80-244

Flutter Analysis of Missile Control Surfaces Containing Structural Nonlinearities J80-236
Improved Orthogonality Check for Measured Modes J80-222
Coupled Rotor/Tower Aeroelastic Analysis of Large Horizontal Axis Wind Turbines J80-214
Generalized Modal Shock Spectra Method for Spacecraft Loads Analysis J80-186
Proportional Optimal Orthogonalization of Measured Modes J80-164
Dynamics of Submerged Cylindrical Shells with Eccentric Stiffening J80-155 J80-140 J80-138
Stability of Circular Cylindrical Shells under Transient Axial Impulsive Loading J80-125
Analytical Model Improvement Using Modal Test Results J80-124
Nonlinear Vibration Phenomena in Films of Solar Arrays J80-123
Master Plan for Prediction of Vehicle Interior Noise J80-068
Hamilton's Law and the Stability of Nonconservative Continuous Systems J80-065
Fatigue Life Estimates of Mistuned Blades Via a Stochastic Approach J80-055
Explicit High-Order Finite-Difference Analysis of Rotationally Symmetric Shells J80-054
Coupled Bending-Torsion Flutter in Cascades J80-036
Effect of Shear Deformation and Rotatory Inertia on the Stability of Beck's and Leipholz's Columns J80-025
Rapid Calculation of the Resonance Frequency for Rotationally Restrained Rectangular Plates J79-003
Direct Solutions for Strum-Liouville Systems with Discontinuous Coefficients J79-002
A Finite-Element Approach for Nonlinear Panel Flutter J77-001

### *Structural Stability*

Optimal Design of Ring Stiffened Cylindrical Shells Using Multiple Stiffener Sizes J80-197
Stability of Circular Cylindrical Shells under Transient Axial Impulsive Loading J80-125
Strength of Initially Wavy Lattice Columns J80-102
Buckling of Orthogonally Stiffened Finite Oval Cylindrical Shells under Axial Compression J80-101
Static Stability Analysis of Elastically Restrained Structures under Follower Forces J80-084
Reduced Basis Technique for Nonlinear Analysis of Structures J80-081
Fatigue Life Estimates of Mistuned Blades Via a Stochastic Approach J80-055
Effect of Shear Deformation and Rotatory Inertia on the Stability of Beck's and Leipholz's Columns J80-025
Effect of Prebuckling Deformations on Buckling of Laminated Composite Circular Cylindrical Shells J80-020

### *Structural Statics*

Discrete-Continuous Variable Structural Synthesis using Dual Methods J80-294
Stresses in Double-Lap Joints Bonded with a Viscoelastic Adhesive: Part II. Parametric Study and Joint Design J80-263
Structural Synthesis by Combining Approximation Concepts and Dual Methods J80-237
Stresses in Double-Lap Joints Bonded with a Viscoelastic Adhesive: Part I. Theory and Experimental Corroboration J80-235
Modeling Nonlinear Deformation of Carbon-Carbon Composite Materials J80-187
Elastic Constants for Superplastically Formed/Diffusion-Bonded Sandwich Structures J80-185
Strength Predictions of Composite Laminates with Unloaded Fastener Holes J80-103
Buckling of Orthogonally Stiffened Finite Oval Cylindrical Shells under Axial Compression J80-101
Reduced Basis Technique for Nonlinear Analysis of Structures J80-081
The Cracked Shear Panel J80-056
Explicit High-Order Finite-Difference Analysis of Rotationally Symmetric Shells J80-054
Stress Analysis of a Plate Containing Two Circular Holes Having Tangential Stresses J80-026
Effect of Prebuckling Deformations on Buckling of Laminated Composite Circular Cylindrical Shells J80-020
Methods of Design Sensitivity Analysis in Structural Optimization J79-005
Bond Thickness Effects upon Stresses In Single-Lap Adhesive Joints J78-001

### *Thermal Stresses*

Creep Linearization of Nonaxisymmetrically Heated Cylinders J80-165

## Thermophysics and Thermochemistry

### *Ablation, Pyrolysis, Thermal Decomposition and Degradation (including Refractories)*

Action of Transition Metal Oxides on Composite Solid Propellants J80-271
Slag and Other Liquid Behavior on Vertical Surface at Near-Freezing Temperature J80-264
Thermal Decomposition and Combustion Studies on Potassium Perchlorate/Polystyrene Propellant Systems J80-181
Proposed Computational Method for Transport Properties of Ablation Products J80-105

### *Experimental Methods of Diagnostics*

Experimental Investigation of Heat and Mass Diffusion in a Porous Tube-Generated Flowfield J80-038
Local Turbulence Properties in Flames from Time-Averaged Raman Spectroscopy Measurements J80-034

### *Heat Conduction*

Heat Flow Through Conical Constrictions J80-238
Single Pulse Laser Irradiation of Fiberglass J80-163
Comparison of Methods for the Calculation of Rocket Nozzle Wall Temperatures J80-156 J80-140
On the Determination of the Polytropic Specific Heat J80-135
Integral Analysis for the Interaction of Radiation with Conduction in a Half Space J80-126
Temperature and Heat Load Distribution in Rotating Heat Pipes J80-037
Direct Solutions for Strum-Liouville Systems with Discontinuous Coefficients J79-002

### *Heat Pipes*

Diffusion and Evaporation of a Liquid Droplet J80-127
Temperature and Heat Load Distribution in Rotating Heat Pipes J80-037

### *Radiation and Radiative Heat Transfer*

Saturation Effects on Stagnation Radiative Heating for the Jupiter Probe J80-216
Emittance of a Finite Scattering Medium with Refractive Index Greater Than Unity J80-137
Solar Flux Incident on an Orbiting Surface after Reflection from a Planet J80-136
Radiative Transfer of Energy in a Cylindrical Enclosure with Heat Generation J80-134
Integral Analysis for the Interaction of Radiation with Conduction in a Half Space J80-126
Thermal Coupling of 2.8-μm Laser Radiation to Metal Targets J80-085
Laser Radiation-Gasdynamic Coupling in the $SF^6$-Air Laminar Boundary Layer J80-057
Radiation from Particles Injected into Hypersonic Flowfields J80-039
Jupiter Entry Simulation Using a High-Performance Arc Heater J80-021

### *Thermal Control*

Diffusion and Evaporation of a Liquid Droplet J80-127
Temperature and Heat Load Distribution in Rotating Heat Pipes J80-037

### *Thermal Modeling and Analysis*

Heat Flow Through Conical Constrictions J80-238
Diffusion and Evaporation of a Liquid Droplet J80-127
Integral Analysis for the Interaction of Radiation with Conduction in a Half Space J80-126

### *Thermal Surface Properties*

Emittance of a Finite Scattering Medium with Refractive Index Greater Than Unity J80-137
Proposed Computational Method for Transport Properties of Ablation Products J80-105

### *Thermochemistry and Chemical Kinetics*

Action of Transition Metal Oxides on Composite Solid Propellants J80-271
Saturation Effects on Stagnation Radiative Heating for the Jupiter Probe J80-216
Plasma Quench Investigations: Tungsten-Oxide Quenchants J80-188
Thermal Decomposition and Combustion Studies on Potassium Perchlorate/Polystyrene Propellant Systems J80-181
Shock Tunnel Measurement of Ionization Rates in Hydrogen J80-086
Influence of Chemical Kinetics and Unmixedness on Burning in Supersonic Hydrogen Flames J80-035

### *Thermophysical Properties of Matter*

On the Determination of the Polytropic Specific Heat J80-135
Proposed Computational Method for Transport Properties of Ablation Products J80-105
Transport Property Correlations for $H_2$-He Gas Mixtures at Temperatures of 1000-25,000 K J80-082

# Author Index


Adcock, J. B., J80-256
Adrian, R. J., J80-174
Agarwal, B. L., J80-262
Agarwal, J. P., J80-110
Agarwal, R. P., J80-159
Al-Baharnah, N. S., J80-037
Alber, I. E., J80-203
Allen, J. M., J80-258
Alziary de Roquefort, T., J80-266
Anders, J. B., J80-001
Anderson J. D. Jr., J80-057
Anderson, J. S., J80-072
Anderson, R., J80-104
Anderson, W. A., J80-003
Antonia, R. A., J80-204
Ardonceau, P. L., J80-266
Arena, A. V., J80-143
Arieli, R., J80-170
Arora, J. S., J79-005, J80-100
Arora, N. L., J80-110
Atluri, S. N., J80-213, J80-215
Avidor, J. M., J80-038
Bachalo, W. D., J80-005
Baganoff, D., J80-178
Bailey, C. D., J80-065
Bailey, H. E., J80-046
Baldwin, B. S., J80-194
Ballantyne, A., J80-016
Balsa, T. F., J80-064
Bar-Or, R., J80-109
Baranovsky, S. I., J80-115, J80-211
Barclay, W. H., J80-278
Barlow, J. B., J80-190
Barnwell, R. W., J80-221
Barsony-Nagy, A., J80-070
Bartel, T. J., J80-251
Barton, G. H., J80-130
Baruch, M., J80-164
Baumeister, K. J., J80-092, J80-287
Bayazitoglu, Y., J80-134
Beckemeyer, R. J., J80-146
Beckstead, M. W., J80-184
Beckwith, I. E., J80-001
Beddini, R. A., J80-259
Bell, W. A., J80-301
Ben-Dor, G., J80-202, J80-218
Bendiksen, O., J80-036
Benton, M. D., J80-102
Berman, A., J80-222
Bhashyam, G. R., J77-001
Bilanin, A. J., J80-142
Billig, F. S., J80-167
Biolsi, L., J80-105
Birk, A., J80-261
Bishop, A. R., J80-279
Bitte, J., J80-007
Bogdonoff, S. M., J80-148
Bohn, A. J., J80-151
Boyle, R., J80-104
Brandeis, J., J80-255
Brandt, A., J80-225
Buning, P. G., J80-207
Buonadonna, V. R., J80-120
Burcat, A., J80-212, J80-234
Bursik, J. W., J80-256
Caledonia, G. E., J80-039
Camarero, R., J80-088
Cannon, S. C., J80-211
Carpenter, P. W., J80-107
Carpenter, W. C., J78-001
Caspar, J. R., J80-019, J80-096
Catalano, G. D., J80-129, J80-242
Caughey, D. A., J80-250
Caverny, L. H., J80-261
Cebeci, T., J80-074
Chakrabartty, S. K., J80-220
Chang I. Shih, J80-285
Chen, J. C., J80-124
Chen, Y. N., J80-101
Chi, M.R., J80-240
Chin, S. C., J80-299
Chin, W. C., J80-030
Choudhury, P. R., J80-080
Chu, K. K., J80-155
Chung, B. T. F., J80-126
Chung, P. M., J80-264
Clarkson, M. H., J80-299
Clayton, B.R., J79-001
Cleary, J. W., J80-205
Cline, M. C., J80-095
Cohen, N. S., J80-051, J80-182
Cole, K., J80-094
Covert, E. E., J79-004, J80-300
Crawford, R. F., J80-102
Crosbie, A. L., J80-137
Cuffel, R. F., J80-047
Daniels, T. C., J80-037
Dash, R., J80-059
Davies, D. E., J80-193
Davis, M. R., J80-106
Davis, R. L., J80-019
Davis, S. S., J80-253
Davis Jr., W. H., J80-208
Delfour, A. G., J80-121
Delichatsios, M., J80-038
Dixon, N. R., J80-077
Doak, R. B., J80-180
Doremus, R. H., J80-098
Dowell, E. H., J79-002, J80-068
Draper, J. S., J80-128
Dunker, R.J., J80-183
Dwyer, H. A., J80-053, J80-230
East, R. A., J80-239
Eastep, F. E., J80-224
Eftis, J., J80-056
Eidelman, S., J80-212, J80-234
Eidinoff, H. L., J78-001
El Banhawy, Y., J80-291
Epton, M. A., J80-069
Ericsson, L. E., J79-004, J79-006, J80-177
Eslami, M. R., J80-165
Essawy, M. E., J80-121
Eustis, R. H., J80-210
Evans, J. S., J80-035
Favin, S., J80-167
Fettis, H. E., J80-011
Fleeter, S., J80-090
Fleury, C., J80-237, J80-294
Forester, C. K., J80-209
Friedmann, P., J80-036, J80-214
Fromme, J. A., J80-076, J80-179
Frost, W., J80-007
Fung, K-Y., J80-223
Gabrijel, Z., J80-109
Galant, D. C., J80-283
Ganji, A. R., J80-153
Garba, J. A., J80-124
Garbo, S. P., J80-103
Ghosh, K., J80-189
Gibeling, H. J., J80-276
Gilbert, B., J80-050
Gnoffo, P. A., J80-112
Golberg, M. A., J80-076, J80-179
Govil, A. K., J80-100
Grabitz, G., J80-072
Graves Jr., R. A., J80-082, J80-132
Groeneweg, J. F., J80-172
Gupta, R. N., J80-158
Hafez, M. M., J80-149
Hah, C., J80-229
Hall, R. B., J80-085
Hall R. M., J80-256
Hanin, M., J80-070
Hankey, W. L., J80-168, J80-171, J80-207, J80-267, J80-282
Hanson, D. B., J80-231, J80-254
Hardin, J. C., J80-097
Harris, W. L., J80-298
Hashimoto, H., J80-079
Haskell, D. F., J80-100
Hassan, H. A., J80-232, J80-290
Hassan, Y. A., J80-174
Haug, E. J., J79-005
Hecht, A. M., J80-142
Hennemann, J. C. F., J80-020
Herbert, T., J80-045
Herman, H., J80-155
Higenyi, J., J80-134
Hijikata, K., J80-008
Hirsh, J. E., J80-142
Hobbs, D. E., J80-019
Hodges, D. H., J79-002
Hoffman, J. D., J80-018, J80-279
Holst, T. L., J80-281
Horstman, C. C., J80-205, J80-288
Houwink, R., J80-191
Howell, G. P., J80-113
Humphris, R. R., J80-129
Hung, C. M., J80-175, J80-302
Hungenberg, H. G., J80-183
Husain, Z. D., J80-286
Hussain, A. K. M. F., J80-286
Hussaini, M. Y., J80-194
Im, K. H., J80-264
Ishii, R., J80-268
Iverson, J. D., J80-166
James, W. D., J80-206
Jameson, A., J80-250
Jobe, C. E., J80-267
Johnson, D. A., J80-005, J80-226
Johnson, F. T., J80-069
Jones, B. G., J80-174
Jones, D. L., J80-295
Jones, R. M., J80-020, J80-187, J80-235, J80-263
Joshi, P. B., J80-147
Jungowski, W. M., J80-072
Kaiser, J. E., J80-093
Kalghatgi, G. T., J80-042
Kan, H. P., J80-245
Karamcheti, K., J80-178, J80-283
Kawasaki, K., J80-268
Kee, R. J., J80-230
Keller, J. D., J80-149
Kemp, N. H., J80-039
Kempner, J., J80-101
Keshavan, N. R., J79-006
Khalid, M., J80-239
Kibens, V., J80-078
Kimura, T., J80-157
Kishore, K., J80-181, J80-271
Kitchens Jr., C. W., J80-176
Knight, C. J., J80-017, J80-099, J80-252
Knuth, E. L., J80-108
Ko, S., J80-173
Ko, W. L., J80-185
Kobayashi, H., J80-172
Kounadis, A. N., J80-084
Koutsoyannis, S. P., J80-283
Kreplin, H.-P., J80-004
Krothapalli, A. J80-178
Kroutil, J. C., J80-021
Kuehn, D. M., J80-062
Kuhn, G. D., J80-044
Kulkarny, V. A., J80-257
Kumar, A., J80-082, J80-132
Kumar, M., J80-154
Kuo, K. K., J80-122, J80-154
Kurasaki, S. S., J80-302
Kurylo J., J80-053
Kush Jr., E. A., J80-147
Kussoy, M. I., J80-288
Kutler, P., J80-010
Laderman, A. J., J80-228
Lai, J. C. S., J80-297
Lai, T. W.-k., J80-152
Lakshminarayana, B., J80-229, J80-260
Landrum, E. J., J80-028
Lau, J. C., J80-111
Laura, P. A. A., J79-003
Laurenson, R. M., J80-236
Lekoudis, S. G., J80-024, J80-201
Leslie, F. W., J80-243
Lester, H. C., J80-091
Levy Jr., L. L., J80-089
Liu, D., J80-173
Liu, T. L., J80-133
Liu, V. C., J80-241
Lu, P., J80-069
Lyons, J. M., J80-011
Mabey, D. G., J80-002
MacCormack, R. W., J80-194
Madhusudana, C. V., J80-238
Madson, J. M., J80-188
Majjigi, R. K., J80-092
Malcolm, G. N., J80-206, J80-253
Malik, M. R., J80-289
Mangiarotty, R. A., J80-151
Marconi, F., J80-014
Martinez, R., J80-117
Marvin, J. G., J80-089
Massey, B.S., J79-001
Massier, P. F., J80-047, J80-116
Mateer, G. G., J80-195
Matty, R. R., J80-130
McIntosh Jr., S. C., J80-296
McLaughlin, D. K., J80-150
Mei, C., J77-001
Meier, G. E. A., J80-072
Meier, H. U., J80-004
Menon, S., J80-158
Meyer, W. L., J80-301
Middlecoff, J. F., J80-119
Mikami, H., J80-083
Mikhail, A. G., J80-168
Mistry, B. K., J80-189
Modest, M. F., J80-136
Moradi, J., J80-197
Moran, J., J80-094
Moran, J. P., J80-180
Morfey, C. L., J80-113
Mori, Y., J80-008
Morino, L., J80-071
Morrison, G. L., J80-150
Morton, J. B., J80-129
Moss, J. N., J80-082
Mueller, T. J., J80-143
Murphy, J. D., J80-170
Muthukrishnan, M., J80-049
Nakagaki, M., J80-213
Napolitano, M., J80-013
Nassar, E. M., J79-003
Nayfeh, A. H., J80-075, J80-093
Neemeh, R. A., J80-009
Nelson, H. F., J80-216
Nicholls, J. A., J80-109
Nichols, D. B., J80-085

Nietubicz, C. J., J80-277
Nishio, M., J80-157
Nishioka, T., J80-215
Nixon, D., J80-061, J80-131, J80-296
Noor, A. K., J80-081
Oberkampf, W. L., J80-251
Ogonowski, J. M., J80-103
Ohtake, K., J80-008
Ojalvo, I. U., J78-001
Okazaki, K., J80-008
Olsen, J. J., J80-224
Olsen, W., J80-060
Oppenheim, A. K., J80-053
Orszag Steven A., J80-289
Ostrowski, P. P., J80-009
Owen, F. K., J80-226
Painter, J. H., J80-021
Pamadi, B. N., J80-196
Panaras, A. G., J80-161
Pandey, B. D., J80-162
Papazian, J. M., J80-063
Pappas, M., J80-155, J80-197
Paris, S. W., J80-206
Parrott, T. L., J80-091
Parthasarathy, S. P., J80-047
Patel, M. H., J80-087
Pavish, D. L., J80-003
Peery, K. M., J80-209
Perkins, J. J., J80-148
Peters, J. M., J80-081
Petkus, E., J80-109
Philpott, D. R., J80-023
Pierson, B., J80-010
Potter, J. L., J80-192
Prathap, G., J77-001
Preuss, R. D., J80-071
Przirembel, C. E. G., J80-217
Pulliam, T. H., J80-031, J80-277
Raj, P., J80-166
Rajagopalan, S., J80-204
Ram, R., J80-162
Rankin, R. R., J80-210
Ratwani, M. M., J80-245
Razdan, M. K., J80-122
Reding, J. P., J79-004, J79-006
Reilly, J. P., J80-016
Reynolds, B., J80-260
Richarz, W. G., J80-145
Ridha, A. H., J80-278
Roberts, W. B., J80-006
Rodkiewicz, C. M., J80-158
Rogers, R. C., J80-052
Rom, J., J80-255
Root, R. G., J80-163
Rosen, R., J80-003
Rubel, A., J80-032, J80-269
Rubin, S. G., J80-011
Russell, D. A., J80-199
Rute, L., J80-135
Salama, M., J80-186
Salas, M. D., J80-043, J80-118
Salmond, D. J., J80-193
Sanders, B. R., J80-230
Sarohia, V., J80-116
Sawdy, D. T., J80-146
Sawyer, R. F., J80-153
Schetz, J. A., J80-115, J80-147, J80-167, J80-211
Schexnayder Jr., C. J., J80-035
Schiff, L. B., J80-280
Schmit, L. A., J80-237, J80-294
Schöyer, H. F. R., J80-156
Seebass, R., J80-223
Seegmiller, H. L., J80-089, J80-205
Self, S. A., J80-210
Sen, J. K., J80-235, J80-263
Setchell, R. E., J80-034
Settles, G. S., J80-148
Shacter, P., J80-299
Shaker, B. S., J80-093
Shamroth, S. J., J80-276
Shang, J. S., J80-168, J80-171, J80-207, J80-282
Shen, S. F., J80-027
Sherman, W. D., J80-120
Shieh, C. F., J80-007
Shukla, K. N., J80-127
Siclari, M. J., J80-015
Simmonds, A., J80-082
Simmons, J. M., J80-297
Singh, P. I., J80-017
Sivaneri, N. T., J80-298
Smith, J. R., J80-022
Smith, T. A., J80-054
Snedeker, R. S., J80-142
Snow, J. T., J80-243
Sobieczky, H., J80-223
Sogliero, G., J80-055
South Jr., J. C., J80-149
Sperlein, R. F., J80-128
Spreiter, J. R., J80-012
Srinivasan, A. V., J80-055
Srirangarajan, H. R., J80-219
Srivastava, B. N., J80-099, J80-252
Srivastava, L. M., J80-159
Srivastava, V. P., J80-159
Stahara, S. S., J80-012
Stainback, P. C., J80-001
Stalker, R. J., J80-086
Stankevics, J. O. A., J80-016
Stanton, A. C., J80-180
Steger, J. L., J80-031, J80-046, J80-277, J80-280
Stewartson, K., J80-074
Strahle, W. C., J80-049
Strand, L. D., J80-182
Strickland, J. H., J80-130
Subramanian, N. R., J80-220
Subramonian, N., J80-056
Suciu, E. O., J80-071
Sudo, S., J80-079
Sundararamaiah, V., J80-025
Sunitha, M. R., J80-181, J80-271
Tang, S., J80-104
Tennyson, R. C., J80-125
Thayer III, W. J., J80-120
Thomas P. D., J80-119
Ting, L., J80-048
Tinoco, E. N., J80-069
Tong, K., J80-252
Trn, R. M., J80-236
Trubert, M., J80-186
Tsai, M. S., J80-227, J80-265
Tuzla, K., J80-199
Ueng, C. E. S., J80-133
Ukadgaonker, V. G., J80-026
Underwood, E. E., J80-133
Vadyak, J., J80-018, J80-279
van der Vooren, J., J80-191
Vanderplaats, G. N., J79-005
Vanhonacker P., J80-293
Venkateswara Rao, G., J80-025
Verdon, J. M., J80-096
Verneker, V. R. P., J80-181, J80-271
Viegas, J. R., J80-195, J80-288
Viswanath, P. R., J80-205
Volpe, V., J80-101
Wagner, B., J80-169
Wagner, J. L., J80-057
Wahl, D., J80-094
Wai, J. C., J80-199
Wang, J. C. T., J80-027
Warmbrodt, W., J80-214
Waskiewicz, J. D., J80-282
Wasserbauer, C., J80-060
Wei, F., J80-244
Weihs, D., J80-270
Weilmuenster, K. J., J80-132
White, R. A., J80-169
Whitelaw, J. H., J80-291
Whiteside, J., J80-104
Whitesides Jr., R. H., J80-018
Widnall, S. E., J80-117
Williams III, J. C., J80-058
Williams, M. H., J80-114, J80-160
Wimberly, C. R., J80-200
Winkelmann, A. E., J80-190
Wirth, M. C., J80-207
Witczak, K. J., J80-072
Woodroffe, J. A., J80-016
Woodward, F. A., J80-028
Wu, C.-I., J80-152
Wu, J. H. T., J80-009
Wu, P. K., J80-163
Yang, J. N., J80-295
Yang, T. T., J80-233
Yeh, L. T., J80-126
Ying, S. J., J80-241
York, T. M., J80-152
Younis, M., J80-088
Yu, J. C., J80-077
Yu, N. J., J80-029
Yuu, S., J80-040
Zak, M. A., J80-123
Zandbergen, T., J80-073
Zannetti, L., J80-144
Zappa, O., J80-099
Zimcik, D. G., J80-125
Zinn, B. T., J80-301
Zirker, J. B., J80-033
Zoby, E. V., J80-082

# Chronological Index

**J77-001 A Finite-Element Approach for Nonlinear Panel Flutter.** C. Mei, *Old Dominion Univeristy* (AIAAJ **16**, 8, p. 1107) Article
Technical Comment by G. Prathap and G. R. Bhashyam, *National Aeronautical Laboratory* (AIAAJ **18**, 6, p. 733)
Reply (AIAAJ **18**, 6, p. 734)

**J78-001 Bond Thickness Effects upon Stresses In Single-Lap Adhesive Joints.** I. U. Ojalvo and H. L. Eidinoff, *Grumman Aerospace Corporation* (AIAAJ **16**, 3, p. 204) Article
Technical Comment by William C. Carpenter, *University of South Florida* (AIAAJ **18**, 3, p. 350)
Reply (AIAAJ **18**, 3, p. 352)

**J79-001 Exact Similar Solution for an Axisymmetric Laminar Boundary Layer on a Circular Cone.** B.R. Clayton and B.S. Massey, *University College* (AIAAJ **17**, 7, p. 785) Technical Note
Errata (AIAAJ **18**, 2, p. 224)

**J79-002 Direct Solutions for Strum-Liouville Systems with Discontinuous Coefficients.** D. H. Hodges, *U.S. Army Research and Technology Laboratories, (AVRADCOM), NASA Ames Research Center* (AIAAJ **17**, 8, p. 924) Technical Note
Technical Comment by Earl H. Dowell, *Princeton University* (AIAAJ **18**, 6, p. 735)
Reply (AIAAJ **18**, 6, p. 735)

**J79-003 Rapid Calculation of the Resonance Frequency for Rotationally Restrained Rectangular Plates.** E. M. Nassar, *Arab Organization for Industrialization* (AIAAJ **17**, 1, p. 6) Article
Technical Comment by Patricio A. A. Laura, *Institute of Applied Mechanics* (AIAAJ **18**, 10, p. 1279)
Reply (AIAAJ **18**, 10, p. 1279)

**J79-004 Hysteresis Zone or Locus-Aerodynamics of Bulbous Based Bodies at Low Speeds.** E. E. Covert, *Massachusetts Institute of Technology* (AIAAJ **17**, 6, p. 659) Technical Note
Technical Comment by Lars E. Ericsson and J. Peter Reding, *Lockheed Missiles & Space Company, Inc.* (AIAAJ **18**, 10, p. 1280)
Reply (AIAAJ **18**, 10, p. 1280)

**J79-005 Methods of Design Sensitivity Analysis in Structural Optimization.** J. S. Arora and E. J. Haug, *The University of Iowa* (AIAAJ **17**, 9, p. 970) Article
Technical Comment by Garret N. Vanderplaats, *Naval Postgraduate School* (AIAAJ **18**, 11, p. 1406)
Reply (AIAAJ **18**, 11, p. 1407)

**J79-006 Criterion for Vortex Periodicity in Cylinder Wakes.** L. E. Ericsson and J. P. Reding, *Lockheed Missiles & Space Company, Inc.* (AIAAJ **17**, 9, p. 1012) Technical Note
Technical Comment by N. R. Keshavan, *Hindustan Aeronautics Limited* (AIAAJ **18**, 11, p. 1408)
Reply (AIAAJ **18**, 11, p. 1408)

**J80-001 New Technique for Reducing Test Section Noise in Supersonic Wind Tunnels.** J. B. Anders, P. C. Stainback and I. E. Beckwith, *NASA Langley Research Center* (AIAAJ **18**, 1, p. 5) Synoptic based on AIAA Paper 78-817 CP783

**J80-002 Resonance Frequencies of Ventilated Wind Tunnels.** Dennis G. Mabey, *Royal Aircraft Establishment* (AIAAJ **18**, 1, p. 7) Synoptic

**J80-003 Correlation Technique for Predicting Attached Turbulent Boundary-Layer/Flap Interaction Pressures.** R. Rosen, D. L. Pavish and W. A. Anderson, *McDonnell Douglas Astronautics Company* (AIAAJ **18**, 1, p. 9) Synoptic based on AIAA Paper 79-0141

**J80-004 Influence of Freestream Turbulence on Boundary-Layer Development.** H. U. Meier and H.-P. Kreplin, *Deutsche Forschungs-und Versuchsanstalt fur Luft-und Raumfahrt e.V.* (AIAAJ **18**, 1, p. 11) Article based on AIAA Paper 78-800 CP783

**J80-005 Transonic Flow Past a Symmetrical Airfoil—Inviscid and Turbulent Flow Properties.** D. A. Johnson and W. D. Bachalo, *NASA Ames Research Center* (AIAAJ **18**, 1, p. 16) Article based on AIAA Paper 78-1117

**J80-006 Calculation of Laminar Separation Bubbles and Their Effect on Airfoil Performance.** W. B. Roberts, *Nielsen Engineering & Research, Inc.* (AIAAJ **18**, 1, p. 25) Article based on AIAA Paper 79-0285

**J80-007 Analysis of Neutrally Stable Atmospheric Flow over a Two-Dimensional Forward-Facing Step.** Walter Frost, Juergen Bitte and Chih Fang Shieh, *The University of Tennessee Space Institute* (AIAAJ **18**, 1, p. 32) Article based on AIAA Paper 76-387

**J80-008 MHD Boundary Layer of the Seeded Combustion Gas near Cold Electrodes.** Ken Okazaki, Kunio Hijikata, Yasuo Mori and Kazutomo Ohtake, *Tokyo Institute of Technology* (AIAAJ **18**, 1, p. 39) Article

**J80-009 Experimental Studies of the Production of Converging Cylindrical Shock Waves.** James H. T. Wu, *McGill University*; Rafik A. Neemeh, *Concordia University*; and P. P. Ostrowski, *University of Maryland* (AIAAJ **18**, 1, p. 47) Synoptic

**J80-010 Optimal Nodal Point Distribution for Improved Accuracy in Computational Fluid Dynamics.** Bion Pierson, *Iowa State University*; and Paul Kutler, *NASA Ames Research Center* (AIAAJ **18**, 1, p. 49) Article based on AIAA Paper 79-0272

**J80-011 Boundary-Layer-Induced Secondary Flows on Wing-Body Configurations.** S. G. Rubin, *Polytechnic Institute of New York*; and J. M. Lyons, *Pratt & Whitney Aircraft Company* (AIAAJ **18**, 1, p. 55) Article based on AIAA Paper 79-0140
Technical Comment by Henry E. Fettis, *Consultant/Mountain View, California* (AIAAJ **18**, 8, p. 1023)

**J80-012 Transonic Wind Tunnel Interference Assessment—Axisymmetric Flows.** Stephen S. Stahara, *Nielsen Engineering & Research, Inc.*; and John R. Spreiter, *Stanford University* (AIAAJ **18**, 1, p. 63) Article based on AIAA Paper 79-0203

**J80-013 Numerical Study of Strong Slot Injection into a Supersonic Laminar Boundary Layer.** Michele Napolitano, *University Cincinnati* (AIAAJ **18**, 1, p. 72) Article based on AIAA Paper 79-0142

**J80-014 Supersonic, Inviscid, Conical Corner Flowfields.** Frank Marconi, *Grumman Aerospace Corporation* (AIAAJ **18**, 1, p. 78) Article based on AIAA Paper 79-0014

**J80-015 Investigation of Crossflow Shocks on Delta Wings in Supersonic Flow.** Michael J. Siclari, *Grumman Aerospace Corporation* (AIAAJ **18**, 1, p. 85) Article based on AIAA Paper 79-0345

**J80-016 Pulsed Laser-Generated Impulse on a Surface in Supersonic Flow.** J. A. Woodroffe, J. O. A. Stankevics, A. Ballantyne and J. P. Reilly, *Avco-Everett Research Laboratory, Inc.* (AIAAJ **18**, 1, p. 94) Synoptic

**J80-017 Pulsed Laser-Induced Shattering of Water Drops.** P. I. Singh and C. J. Knight, *Avco Everett Research Laboratory* (AIAAJ **18**, 1, p. 96) Article based on AIAA Paper 78-1218

**J80-018 Flowfield Computations in Rotating Propulsive Nozzles.** Joseph Vadyak, and Joe D. Hoffman, *Purdue University*; and R. H. Whitesides Jr., *Thiokol Corporation* (AIAAJ **18**, 1, p. 101) Synoptic based on AIAA Paper 78-1046

**J80-019 Calculation of Two-Dimensional Potential Cascade Flow.** Joseph R. Caspar, David E. Hobbs and Roger L. Davis, *United Technologies Corporation* (AIAAJ **18**, 1, p. 103) Article based on AIAA Paper 79-0077

**J80-020 Effect of Prebuckling Deformations on Buckling of Laminated Composite Circular Cylindrical Shells.** Robert M. Jones and Jose C. F. Hennemann, *Southern Methodist University* (AIAAJ **18**, 1, p. 110) Article based on AIAA Paper 78-516 CP781

**J80-021 Jupiter Entry Simulation Using a High-Performance Arc Heater.** J. H. Painter and J. C. Kroutil, *McDonnell Douglas Corporation* (AIAAJ **18**, 1, p. 116) Synoptic based on AIAA Paper 78-1602 CP788

**J80-022 Pulsed Raman Measurements in a Stratified Charge Engine.** J. Ray Smith, *Sandia Laboratories* (AIAAJ **18**, 1, p. 118) Technical Note

**J80-023 Simple Analytical Modeling of Supersonic Flow around Blunt Axisymmetrical Bodies.** D. R. Philpott, *The Hatfield Polytechnic* (AIAAJ **18**, 1, p. 120) Technical Note based on AIAA Paper 78-1356 CP786

**J80-024 Resonant Wave Interactions on a Swept Wing.** Spyridon G. Lekoudis, *Lockheed-Georgia Company* (AIAAJ **18**, 1, p. 122) Technical Note

**J80-025 Effect of Shear Deformation and Rotatory Inertia on the Stability of Beck's and Leipholz's Columns.** V. Sundararamaiah and G. Venkateswara Rao, *Vikram Sarabhai Space Centre* (AIAAJ **18**, 1, p. 124) Technical Note

**J80-026 Stress Analysis of a Plate Containing Two Circular Holes Having Tangential Stresses.** Vijay G. Ukadgaonker, *Indian Institute of Technology* (AIAAJ **18**, 1, p. 125) Technical Note

**J80-027 Rational New Approach to the Response of an Aircraft Encountering Atmospheric Turbulence.** J. C. T. Wang and S. F. Shen, *Cornell University* (AIAAJ **18**, 2, p. 129) Article based on AIAA Paper 77-115

**J80-028 The Supersonic Triplet-A New Aerodynamic Panel Singularity with Directional Properties.** Frank A. Woodward, *Analytical Methods, Inc.*; and Emma Jean Landrum, *NASA Langley Research Center* (AIAAJ **18**, 2, p. 138) Article based on AIAA Paper 79-0273

**J80-029 Efficient Transonic Shock-Free Wing Redesign Procedure Using a Fictitious Gas Method.** N. J. Yu, *The Boeing Company* (AIAAJ **18**, 2, p. 143) Article based on AIAA Paper 79-0075

**J80-030 Effect of Dissipation and Dispersion on Slowly Varying Wavetrains.** Wilson C. Chin, *Massachusetts Institute of Technology* (AIAAJ **18**, 2, p. 149) Article

**J80-031 Implicit Finite-Difference Simulations of Three-Dimensional Compressible Flow.** Thomas H. Pulliam and Joseph L. Steger, *NASA Ames Research Center* (AIAAJ **18**, 2, p. 159) Article based on AIAA Paper 78-10

**J80-032 Computations of Jet Impingement on a Flat Surface.** A. Rubel, *Grumman Aerospace Corporation* (AIAAJ **18**, 2, p. 168) Article based on AIAA Paper 78-207

**J80-033 Solar Pulsations.** Jack B. Zirker, *Sacramento Peak Observatory* (AIAAJ **18**, 2, p. 176) Article based on AIAA Paper 79-0318

**J80-034 Local Turbulence Properties in Flames from Time-Averaged Raman Spectroscopy Measurements.** Robert E. Setchell, *Sandia Laboratories* (AIAAJ **18**, 2, p. 181) Article based on AIAA Paper 79-0087

**J80-035 Influence of Chemical Kinetics and Unmixedness on Burning in Supersonic Hydrogen Flames.** John S. Evans and Charles J. Schexnayder Jr., *NASA Langley Research Center* (AIAAJ **18**, 2, p. 188) Article based on AIAA Paper 79-0355

**J80-036 Coupled Bending-Torsion Flutter in Cascades.** Oddvar Bendiksen and Peretz Friedmann, *University of California* (AIAAJ **18**, 2, p. 194) Article based on AIAA Paper 79-0793 CP793

**J80-037 Temperature and Heat Load Distribution in Rotating Heat Pipes.** T. C. Daniels and N. S. Al-Baharnah, *Univeristy of Swansea* (AIAAJ **18**, 2, p. 202) Article based on AIAA Paper 78-416

**J80-038 Experimental Investigation of Heat and Mass Diffusion in a Porous Tube-Generated Flowfield.** J. M. Avidor and M. Delichatsios, *Avco Everett Research Laboratory* (AIAAJ **18**, 2, p. 208) Article based on AIAA Paper 78-178

**J80-039 Radiation from Particles Injected into Hypersonic Flowfields.** Nelson H. Kemp and George E. Caledonia, *Physical Sciences, Inc.* (AIAAJ **18**, 2, p. 215) Article

**J80-040 Experimental Study of Turbulent Flow near a Suction Tube.** Shinichi Yuu, *Kyushu Institute of Technology* (AIAAJ **18**, 2, p. 222) Technical Note

**J80-042 Study of Coherent Structures in Axisymmetric Jets Using an Optical Technique.** Gautam T. Kalghatgi, *University of Southampton* (AIAAJ **18**, 3, p. 225) Synoptic

**J80-043 Flow Patterns Near a Conical Sonic Line.** Manuel D. Salas, *NASA Langley Research Center* (AIAAJ **18**, 3, p. 227) Article based on AIAA Paper 79-0341

**J80-044 Calculation of Separated Turbulent Flows on Axisymmetric Afterbodies Including Exhaust Plume Effects.** Gary D. Kuhn, *Nielsen Engineering & Research, Inc.* (AIAAJ **18**, 3, p. 235) Article based on AIAA Paper 79-0303

**J80-045 Nonlinear Stability of Parallel Flows By High-Order Amplitude Expansions.** Thorwald Herbert, *Universität Stuttgart* (AIAAJ **18**, 3, p. 243) Article based on AIAA Paper 78-1125

**J80-046 Calculation of Transonic Aileron Buzz.** J. L. Steger and H. E. Bailey, *NASA Ames Research Center* (AIAAJ **18**, 3, p. 249) Article based on AIAA Paper 79-0134

**J80-047 Separation of Core Noise and Jet Noise.** S. P. Parthasarathy, R. F. Cuffel and P. F. Massier, *Jet Propulsion Laboratory, California Institute of Technology* (AIAAJ **18**, 3, p. 256) Article based on AIAA Paper 79-0589

**J80-048 Radiation of an Acoustic Source Near the Trailing Edge of a Wing in Forward Motion.** Lu Ting, *New York University* (AIAAJ **18**, 3, p. 262) Article based on AIAA Paper 79-0605

**J80-049 Correlation of Combustor Rig Sound Power Data and Theoretical Basis of Results.** Warren C. Strahle and M. Muthukrishnan, *Georgia Institute of Technology* (AIAAJ **18**, 3, p. 269) Article based on AIAA Paper 79-0587

**J80-050 Turbulent Flows Produced by Perforated Plate Generators in Wind Tunnels.** Barry Gilbert, *Grumman Aerospace Corporation* (AIAAJ **18**, 3, p. 275) Synoptic

**J80-051 Review of Composite Propellant Burn Rate Modeling.** Norman S. Cohen, *Norman Cohen Professional Services* (AIAAJ **18**, 3, p. 277) Survey Paper based on AIAA Paper 79-0160

**J80-052 Model of Transverse Fuel Injection in Supersonic Combustors.** R. C. Rogers, *NASA Langley Research Center* (AIAAJ **18**, 3, p. 294) Article based on AIAA Paper 79-0359

**J80-053 Numerical Analysis of Flowfields Generated by Accelerating Flames.** J. Kurylo, *Lawrence Berkeley Laboratory*; H. A. Dwyer and A. K. Oppenheim, *University of California* (AIAAJ **18**, 3, p. 302) Article based on AIAA Paper 79-0290

**J80-054 Explicit High-Order Finite-Difference Analysis of Rotationally Symmetric Shells.** Troy Alvin Smith, *U.S. Army Missile Command* (AIAAJ **18**, 3, p. 309) Article

**J80-055 Fatigue Life Estimates of Mistuned Blades Via a Stochastic Approach.** Gene Sogliero, *Trinity College*; and A. V. Srinivasan, *United Technologies Research Center* (AIAAJ **18**, 3, p. 318) Article

**J80-056 The Cracked Shear Panel.** John Eftis and Natarajan Subramonian, *The George Washington University* (AIAAJ **18**, 3, p. 324) Article

**J80-057 Laser Radiation-Gasdynamic Coupling in the $SF^6$-Air Laminar Boundary Layer.** J. L. Wagner, *John Hopkins University*; and Anderson J. D. Jr., *University of Maryland* (AIAAJ **18**, 3, p. 333) Synoptic based on AIAA Paper 78-1192

**J80-058 Mathematical Criterion for Unsteady Boundary-Layer Separation.** James C. Williams III, *North Carolina State University* (AIAAJ **18**, 3, p. 335) Technical Note

**J80-059 Strouhal Number Influence on Flight Effects on Jet Noise Radiated from Convecting Quadrupoles.** R. Dash, *NASA Ames Research Center* (AIAAJ **18**, 3, p. 337) Technical Note

**J80-060 Effect of Temperature on Surface Noise.** W. Olsen and C. Wasserbauer, *NASA Lewis Research Center* (AIAAJ **18**, 3, p. 339) Technical Note

**J80-061 Observations on the Strained Coordinate Method for Transonic Flows.** D. Nixon, *Nielsen Engineering and Research, Incorporated* (AIAAJ **18**, 3, p. 341) Technical Note

**J80-062 Effects of Adverse Pressure Gradient on the Incompressible Reattaching Flow over a Rearward-Facing Step.** Donald M. Kuehn, *NASA Ames Research Center* (AIAAJ **18**, 3, p. 343) Technical Note

**J80-063 Use of Metallic Analog Materials in Low-Gravity Solidification Experiments.** John M. Papazian, *Grumman Aerospace Corporation* (AIAAJ **18**, 3, p. 344) Technical Note

**J80-064 On The Fundamental Solution for a Cascade.** T. F. Balsa, *General Electric Corporate Research and Development* (AIAAJ **18**, 3, p. 346) Technical Note

**J80-065 Hamilton's Law and the Stability of Nonconservative Continuous Systems.** Cecil D. Bailey, *The Ohio State University* (AIAAJ **18**, 3, p. 347) Technical Note

**J80-068 Master Plan for Prediction of Vehicle Interior Noise.** Earl H. Dowell, *Princeton University* (AIAAJ **18**, 4, p. 353) Survey Paper based on AIAA Paper 79-0582

**J80-069 Three-Dimensional Flow Over Wings with Leading-Edge Vortex Separation.** F. T. Johnson and E. N. Tinoco, *Boeing Aerospace Company*; P. Lu and M. A. Epton, *Boeing Computer Services* (AIAAJ **18**, 4, p. 367) Article based on AIAA Paper 79-0282

**J80-070 Slender Wing Theory for Nonuniform Stream.** M. Hanin and A. Barsony-Nagy, *Technion-Israel Institute of Technology* (AIAAJ **18**, 4, p. 381) Article

**J80-071 Unsteady Potential Aerodynamics of Rotors with Applications to Horizontal-Axis Windmills.** Robert D. Preuss, Emil O. Suciu and Luigi Morino, *Boston University* (AIAAJ **18**, 4, p. 385) Article

**J80-072 Oscillations of the Supersonic Flow Downstream of an Abrupt Increase in Duct Cross Section.** G. E. A. Meier, G. Grabitz, W. M. Jungowski, K. J. Witczak and J. S. Anderson, *Max-Planck-Institut fur Stromungsforschung* (AIAAJ **1**, 4, p. 394) Synoptic

**J80-073 Do Locally Reacting Acoustic Liners Always Behave as They Should?** T. Zandbergen, *National Aerospace Laboratory (NLR)* (AIAAJ **18**, 4, p. 396) Synoptic based on AIAA Paper 79-0597

**J80-074 On Stability and Transition in Three-Dimensional Flows.** Tuncer Cebeci, *California State University at Long Beach*; and Keith Stewartson, *University College* (AIAAJ **18**, 4, p. 398) Article based on AIAA Paper 79-0263

**J80-075 Stability of Three-Dimensional Boundary Layers.** Ali H. Nayfeh, *Virginia Polytechnic Institute and State University* (AIAAJ **18**, 4, p. 406) Article based on AIAA Paper 79-0262

**J80-076 Aerodynamic Interference Effects on Oscillating Airfoils with Controls in Ventilated Wind Tunnels.** J. A. Fromme and M. A. Golberg, *University of Nevada* (AIAAJ **18**, 4, p. 417) Article based on AIAA Paper 79-0346

**J80-077 Experimental Study of Sound Radiation from a Subsonic Jet in Simulated Motion.** J. C. Yu, *NASA Langley Research Center*; and N. R. Dixon, *George Washington University* (AIAAJ **18**, 4, p. 427) Article based on AIAA Paper 79-0185

**J80-078 Discrete Noise Spectrum Generated by an Acoustically Excited Jet.** Valdis Kibens, *McDonnell Douglas Corporation* (AIAAJ **18**, 4, p. 434) Article based on AIAA Paper 79-0592

**J80-079 Surface Disintegration and Bubble Formation in Vertically Vibrated Liquid Column.** Hiroyuki Hashimoto and Seiichi Sudo, *Tohoku University* (AIAAJ **18**, 4, p. 442) Article

**J80-080 Scaling and Performance of Dump Combustors with Transverse Gas Jets.** P. Roy Choudhury, *University of Southern California* (AIAAJ **18**, 4, p. 450) Article based on AIAA Paper 79-0382

**J80-081 Reduced Basis Technique for Nonlinear Analysis of Structures.** Ahmed K. Noor and Jeanne M. Peters, *George Washington University Center* (AIAAJ **18**, 4, p. 455) Article based on AIAA Paper 79-0747 CP794

**J80-082 Transport Property Correlations for $H_2$-He Gas Mixtures at Temperatures of 1000-25,000 K.** E. V. Zoby, R. A. Graves Jr., J. N. Moss, A. Kumar and A. Simmonds, *NASA Langley Research Center* (AIAAJ **18**, 4, p. 463) Article based on AIAA Paper 79-0034

**J80-083 Free Jet Expansion in a Rapidly Rotating Gas.** Hisashi Mikami, *Tokyo Institute of Technology* (AIAAJ **18**, 4, p. 471) Technical Note

**J80-084 Static Stability Analysis of Elastically Restrained Structures under Follower Forces.** A. N. Kounadis, *National Technical University of Athens* (AIAAJ **18**, 4, p. 473) Technical Note

**J80-085 Thermal Coupling of 2.8-μm Laser Radiation to Metal Targets.** D. B. Nichols and R. B. Hall, *The Boeing Aerospace Company* (AIAAJ **18**, 4, p. 476) Technical Note

**J80-086 Shock Tunnel Measurement of Ionization Rates in Hydrogen.** R. J. Stalker, *University of Queensland* (AIAAJ **18**, 4, p. 478) Technical Note

**J80-087 The Delta Wing in Oscillatory Gusts.** M. H. Patel, *University College London* (AIAAJ **18**, 5, p. 481) Article

**J80-088 Efficient Generation of Body-Fitted Coordinates for Cascades Using Multigrid.** R. Camarero and M. Younis, *Ecole Polytechnique* (AIAAJ **18**, 5, p. 487) Synoptic based on AIAA Paper 79-7049

**J80-089 Turbulence Modeling for Unsteady Transonic Flows.** J. G. Marvin, L. L. Levy Jr. and H. L. Seegmiller, *NASA Ames Research Center* (AIAAJ **18**, 5, p. 489) Article based on AIAA Paper 79-0071

**J80-090 Trailing Edge Conditions for Unsteady Flows at High Reduced Frequency.** Sanford Fleeter, *Purdue University* (AIAAJ **18**, 5, p. 497) Article based on AIAA Paper 79-0152

**J80-091 Comparison of Measured and Predicted Impedance at Grazing Incidence.** Harold C. Lester and Tony L. Parrott, *NASA Langley Research Center* (AIAAJ **18**, 5, p. 504) Article based on AIAA Paper 79-0664

**J80-092 Applications of Velocity Potential Function to Acoustic Duct Propagation Using Finite Elements.** K. J. Baumeister, *NASA Lewis Research Center*; and R. K. Majjigi, *General Electric Company* (AIAAJ **18**, 5, p. 509) Article based on AIAA Paper 79-0680

**J80-093 Transmission of Sound Through Nonuniform Circular Ducts with Compressible Mean Flows.** A. H. Nayfeh, B. S. Shaker and J. E. Kaiser, *Virginia Polytechnic Institute and State University* (AIAAJ **18**, 5, p. 515) Article based on AIAA Paper 79-0622

**J80-094 Analysis of Two-Dimensional Incompressible Flows by a Subsurface Panel Method.** Jack Moran, Kevin Cole and David Wahl, *University of Minnesota* (AIAAJ **18**, 5, p. 526) Article

**J80-095 Stability Aspects of Diverging Subsonic Flow.** Michael C. Cline, *University of California* (AIAAJ **18**, 5, p. 534) Article

**J80-096 Subsonic Flow Past an Oscillating Cascade with Finite Mean Flow Deflection.** Joseph M. Verdon and Joseph R. Caspar, *United Technologies Research Center* (AIAAJ **18**, 5, p. 540) Article based on AIAA Paper 79-1516

**J80-097 Noise Radiation from the Side Edges of Flaps.** Jay C. Hardin, *NASA Langley Research Center* (AIAAJ **18**, 5, p. 549) Article

**J80-098 Processing of Glass in Space.** Robert H. Doremus, *University of California* (AIAAJ **18**, 5, p. 553) Synoptic based on AIAA Paper 79-0031

**J80-099 Acoustic Suppression in a Pulsed Laser System.** B. N. Srivastava, C. J. Knight and O. Zappa, *Avco Everett Research Laboratory* (AIAAJ **18**, 5, p. 555) Article based on AIAA Paper 79-0209

**J80-100 Optimal Design of Large Structures for Damage Tolerance.** Jasbir S. Arora, *University of Iowa*; Donald F. Haskell, *Ballistic Research Laboratory*; and Ashok K. Govil, *Regional Engineering College* (AIAAJ **18**, 5, p. 563) Article

**J80-101 Buckling of Orthogonally Stiffened Finite Oval Cylindrical Shells under Axial Compression.** V. Volpe, *Grumman Aerospace Corp.*; Y. N. Chen, *American Bureau of Shipping*; and J. Kempner, *Polytechnic Institute of New York* (AIAAJ **18**, 5, p. 571) Article

**J80-102 Strength of Initially Wavy Lattice Columns.** R. F. Crawford, *General Research Corporation*; and M. D. Benton, *AEC-ABLE Engineering Company, Inc.* (AIAAJ **18**, 5, p. 581) Article based on AIAA Paper 79-0753 CP794

**J80-103 Strength Predictions of Composite Laminates with Unloaded Fastener Holes.** S. P. Garbo and J. M. Ogonowski, *McDonnell Aircraft Company* (AIAAJ **18**, 5, p. 585) Article based on AIAA Paper 79-0800 CP794

**J80-104 Nonlinear Stress-Strain Law for Metallic Meshes.** S. Tang, R. Boyle, J. Whiteside and R. Anderson, *Grumman Aerospace Corporation* (AIAAJ **18**, 5, p. 590) Article based on AIAA Paper 79-0936 CP797

**J80-105 Proposed Computational Method for Transport Properties of Ablation Products.** Louis Biolsi, *University of Colorado/NOAA* (AIAAJ **18**, 5, p. 596) Synoptic

**J80-106 Design of Flat Plate Leading Edges to Avoid Flow Separation.** M. R. Davis, *University of New South Wales* (AIAAJ **18**, 5, p. 598) Technical Note

**J80-107 Effects of Swirl on the Subcritical Performance of Convergent Nozzles.** P. W. Carpenter, *University of Exeter* (AIAAJ **18**, 5, p. 600) Technical Note

**J80-108 Free-Molecule Normal-Momentum Transfer at Satellite Surfaces.** Eldon L. Knuth, *University of California* (AIAAJ **18**, 5, p. 602) Technical Note

**J80-109 Recent Experiments on Heterogeneous Detonation Waves.** J. A. Nicholls, R. Bar-Or, Z. Gabrijel and E. Petkus, *The University of Michigan* (AIAAJ **18**, 5, p. 605) Technical Note based on AIAA Paper 79-0288

**J80-110 Axisymmetric Transonic Flow Past Slender Bodies by an Integral Equation Method.** N. L. Arora and J. P. Agarwal, *Indian Institute of Technology* (AIAAJ **18**, 5, p. 606) Technical Note

**J80-111 Mach Number and Temperature Effects on Jets.** J. C. Lau, *Lockheed-Georgia Company* (AIAAJ **18**, 6, p. 609) Synoptic based on AIAA Paper 78-1152

**J80-112 Complete Supersonic Flowfields over Blunt Bodies in a Generalized Orthogonal Coordinate System.** Peter A. Gnoffo, *NASA Langley Research Center* (AIAAJ **18**, 6, p. 611) Synoptic

**J80-113 Sound Power Spectrum of Shock-Free Jets.** C. L. Morfey and G. P. Howell, *Southampton University* (AIAAJ **18**, 6, p. 613) Synoptic based on AIAA Paper 79-0595

**J80-114 Unsteady Thin Airfoil Theory for Transonic Flows with Embedded Shocks.** M. H. Williams, *Princeton University* (AIAAJ **18**, 6, p. 615) Article based on AIAA Paper 79-0204

**J80-115 Effect of Injection Angle on Liquid Injection in Supersonic Flow.** S. I. Baranovsky and J. A. Schetz, *Virginia Polytechnic Institute and State University* (AIAAJ **18**, 6, p. 625) Article based on AIAA Paper 79-0383

**J80-116 Effect of Density on Noise Radiation from Subsonic Inverted Velocity Profile Jets.** Virendra Sarohia and P. F. Massier, *Jet Propulsion Laboratory* (AIAAJ **18**, 6, p. 630) Article based on AIAA Paper 79-0634

**J80-117 Unified Aerodynamic-Acoustic Theory for a Thin Rectangular Wing Encountering a Gust.** Rudolph Martinez and Sheila E. Widnall, *Massachusetts Institute of Technology* (AIAAJ **18**, 6, p. 636) Article

**J80-118 Careful Numerical Study of Flowfields about Symmetric External Conical Corners.** Manuel D. Salas, *NASA Langley Research Center* (AIAAJ **18**, 6, p. 646) Article based on AIAA Paper 79-1511

**J80-119 Direct Control of the Grid Point Distribution in Meshes Generated by Elliptic Equations.** Thomas P. D. and J. F. Middlecoff, *Lockheed Palo Alto Research Laboratory* (AIAAJ **18**, 6, p. 652) Article based on AIAA Paper 79-1462 CP799

**J80-120 Pressure Wave Suppression for a Pulsed Chemical Laser.** William J. Thayer III, Victor R. Buonadonna and William D. Sherman, *Boeing Aerospace Company* (AIAAJ **18**, 6, p. 657) Article based on AIAA Paper 78-1216

**J80-121 Determining Size Distribution of Liquid Nitrogen Particles Flowing in an Airstream by Scattered Light Detection.** M. E. Essawy, *Ecole Nationale Supeieure de l'Aeronautique et de l'Espace*; and A. G. Delfour, *CERT* (AIAAJ **18**, 6, p. 665) Article

**J80-122 Measurements and Model Validation for Composite Propellants Burning under Cross Flow of Gases.** Mohan K. Razdan and Kenneth K. Kuo, *The Pennsylvania State University* (AIAAJ **18**, 6, p. 669) Article based on AIAA Paper 79-1172

**J80-123 Nonlinear Vibration Phenomena in Films of Solar Arrays.** Michail A. Zak, *Jet Propulsion Laboratory* (AIAAJ **18**, 6, p. 678) Article based on AIAA Paper 79-0834 CP794

**J80-124 Analytical Model Improvement Using Modal Test Results.** Jay C. Chen and John A. Garba, *Jet Propulsion Laboratory* (AIAAJ **18**, 6, p. 684) Article based on AIAA Paper 79-0831 CP794

**J80-125 Stability of Circular Cylindrical Shells under Transient Axial Impulsive Loading.** D. G. Zimcik, *Canadian FRAM Ltd.*; and R. C. Tennyson, *University of Toronto* (AIAAJ **18**, 6, p. 691) Article based on AIAA Paper 79-0786 CP794

**J80-126 Integral Analysis for the Interaction of Radiation with Conduction in a Half Space.** L. T. Yeh, *Babcock & Wilcox Company*; and B. T. F. Chung, *The University of Akron* (AIAAJ **18**, 6, p. 700) Article

**J80-127 Diffusion and Evaporation of a Liquid Droplet.** K. N. Shukla, *Vikram Sarabhai Space Centre* (AIAAJ **18**, 6, p. 706) Article

**J80-128 Analysis of Radar Returns from a Rocket Plume.** James Stark Draper, *Aerodyne Research, Inc.*; and Robert F. Sperlein, *Air Force Office of Scientific Research, Aerospace Sciences Directorate* (AIAAJ **18**, 6, p. 712) Technical Note

**J80-129 Three-Component Velocity Measurements in an Upper Surface Blowing Configuration.** G. D. Catalano, *Air Force Flight Dynamics Laboratory*; J. B. Morton and R. R. Humphris, *University of Virginia* (AIAAJ **18**, 6, p. 714) Technical Note based on AIAA Paper 79-1858

**J80-130 Vortex Shedding from Square Plates Perpendicular to a Ground Plane.** James H. Strickland, Rosemary R. Matty and Gregory H. Barton, *Texas Tech University* (AIAAJ **18**, 6, p. 715) Technical Note

**J80-131 Transonic Small Disturbance Theory with Strong Shock Waves.** David Nixon, *Nielsen Engineering & Research, Inc.* (AIAAJ **18**, 6, p. 717) Technical Note

**J80-132 Flowfield Calculations Past an Entry Probe with Ablated Nose Shape.** Ajay Kumar, *Old Dominion University*; R. A. Graves Jr. and K. J. Weilmuenster, *NASA Langley Research Center* (AIAAJ **18**, 6, p. 719) Technical Note

**J80-133 Shear Modulus of New Sandwich Cores Made of Superplastic Sheet.** C. E. S. Ueng, and E. E. Underwood, *Georgia Institute of Technology*; and T. L. Liu, *Evans Products Co.* (AIAAJ **18**, 6, p. 721) Technical Note based on AIAA Paper 79-0754 CP794

**J80-134 Radiative Transfer of Energy in a Cylindrical Enclosure with Heat Generation.** James Higenyi and Yildiz Bayazitoglu, *Rice University* (AIAAJ **18**, 6, p. 723) Technical Note

**J80-135 On the Determination of the Polytropic Specific Heat.** Leo Rute, *Merrimack College* (AIAAJ **18**, 6, p. 726) Technical Note

**J80-136 Solar Flux Incident on an Orbiting Surface after Reflection from a Planet.** Michael F. Modest, *Rensselaer Polytechnic Institute* (AIAAJ **18**, 6, p. 727) Technical Note

**J80-137 Emittance of a Finite Scattering Medium with Refractive Index Greater Than Unity.** A. L. Crosbie, *University of Missouri-Rolla* (AIAAJ **18**, 6, p. 730) Technical Note

**J80-142 Turbulent Vortices in Stratified Fluids.** A. M. Hecht, A. J. Bilanin, J. E. Hirsh and R. S. Snedeker, *Aeronautical Research Associates of Princeton, Inc.* (AIAAJ **18**, 7, p. 738) Article based on AIAA Paper 79-0151

**J80-143 Laminar Separation, Transition, and Turbulent Reattachment near the Leading Edge of Airfoils.** A. V. Arena and T. J. Mueller, *University of Notre Dame* (AIAAJ **18**, 7, p. 747) Article based on AIAA Paper 79-0004

**J80-144 Time-Dependent Method to Solve the Inverse Problem for Internal Flows.** L. Zannetti, *Politecnico di Torino* (AIAAJ **18**, 7, p. 754) Article based on AIAA Paper 79-0013

**J80-145 Direct Correlation of Noise and Flow of a Jet Using Laser Doppler.** W. G. Richarz, *University of Toronto* (AIAAJ **18**, 7, p. 759) Article based on AIAA Paper 79-0571

**J80-146 Bandwidth Attenuation with a Folded Cavity Liner in a Circular Flow Duct.** D. T. Sawdy and R. J. Beckemeyer, *Boeing Military Airplane Company* (AIAAJ **18**, 7, p. 766) Article based on AIAA Paper 79-0598

**J80-147 Wave Phenomena in Liquid Jet Breakup in a Supersonic Crossflow.** J. A. Schetz, E. A. Kush Jr. and P. B. Joshi, *Virginia Polytechnic Institute and State University* (AIAAJ **18**, 7, p. 774) Article

**J80-148 Investigation of Three-Dimensional Shock/Boundary-Layer Interactions at Swept Compression Corners.** Gary S. Settles, Jeffrey J. Perkins and Seymour M. Bogdonoff, *Princeton University* (AIAAJ **18**, 7, p. 779) Article based on AIAA Paper 79-1498

**J80-149 Vector Processor Algorithms for Transonic Flow Calculations.** Jerry C. South Jr. and James D. Keller, *NASA Langley Research Center*; and Mohamed M. Hafez, *Flow Research Co.* (AIAAJ **18**, 7, p. 786) Article based on AIAA Paper 79-1457 CP799

**J80-150 Instability Process in Low Reynolds Number Supersonic Jets.** Gerald L. Morrison and Dennis K. McLaughlin, *Oklahoma State University* (AIAAJ **18**, 7, p. 793) Article

**J80-151 Wind Tunnel Study of Acoustical Disturbance Effect on Controlled Laminar Flow.** R. A. Mangiarotty and A. J. Bohn, *Boeing Commercial Airplane Company* (AIAAJ **18**, 7, p. 801) Article based on AIAA Paper 79-0629

**J80-152 Electron Collection by Blunt Probes in the Lower Ionosphere.** T. M. York, C.-I. Wu and T. W.-k. Lai, *The Pennsylvania State University* (AIAAJ **18**, 7, p. 808) Article based on AIAA Paper 79-1541

**J80-153 Experimental Study of the Flowfield of a Two-Dimensional Premixed Turbulent Flame.** A. R. Ganji and R. F. Sawyer, *University of California* (AIAAJ **18**, 7, p. 817) Article based on AIAA Paper 79-0017

**J80-154 Ignition of Solid Propellant Crack Tip under Rapid Pressurization.** Mridul Kumar and Kenneth K. Kuo, *The Pennsylvania State University* (AIAAJ **18**, 7, p. 825) Article based on AIAA Paper 79-1175

**J80-155 Dynamics of Submerged Cylindrical Shells with Eccentric Stiffening.** Kerry Kier-Ten Chu, Michael Pappas and Harry Herman, *New Jersey Institute of Technology* (AIAAJ **18**, 7, p. 834) Article

**J80-156 Comparison of Methods for the Calculation of Rocket Nozzle Wall Temperatures.** H. F. R. Schöyer, *Delft University of Technology* (AIAAJ **18**, 7, p. 841) Synoptic based on AIAA Paper 78-1044

**J80-157 Measurement of Shock Waves around a Delta-Wing Semicone.** Takeyoshi Kimura and Masatomi Nishio, *Kobe University* (AIAAJ **18**, 7, p. 843) Technical Note

**J80-158 Analysis of the Strong Interaction Problem with Slip and Temperature-Jump Effects.** R. N. Gupta and S. Menon, *Indian Institute of Technology*; and C. M. Rodkiewicz, *University of Alberta* (AIAAJ **18**, 7, p. 844) Technical Note

**J80-159 Boundary Layer of Density-Stratified Fluids with a Suspension of Particles.** L. M. Srivastava, V. P. Srivastava and R. P. Agarwal, *Motilal Nehru Regional Engineering College* (AIAAJ **18**, 7, p. 846) Technical Note

**J80-160 Aerodynamic Coefficients in Generalized Unsteady Thin Airfoil Theory.** M. H. Williams, *Princeton University* (AIAAJ **18**, 7, p. 850) Technical Note

**J80-161 Separation Pressure of a Turbulent Boundary Layer in Transonic Interactions.** A. G. Panaras, *Von Kármán Institute for Fluid Dynamics* (AIAAJ **18**, 7, p. 852) Technical Note

**J80-162 Propagation of Weak MHD Waves in Steady Hypersonic Flows with Radiation.** Rishi Ram and Bishun Deo Pandey, *Banaras Hindu University* (AIAAJ **18**, 7, p. 855) Technical Note

**J80-163 Single Pulse Laser Irradiation of Fiberglass.** Peter K. Wu and Robert G. Root, *Physical Sciences Inc.* (AIAAJ **18**, 7, p. 857) Technical Note

**J80-164 Proportional Optimal Orthogonalization of Measured Modes.** Menahem Baruch, *Technion-Israel Institute of Technology* (AIAAJ **18**, 7, p. 859) Technical Note

**J80-165 Creep Linearization of Nonaxisymmetrically Heated Cylinders.** M. R. Eslami, *Tehran Polytechnic* (AIAAJ **18**, 7, p. 862) Technical Note

**J80-166 Computational Simulation of Turbulent Vortex Merger and Decay.** Pradeep Raj, *Lockheed-California Company*; and J. D. Iverson, *Iowa State University* (AIAAJ **18**, 8, p. 865) Synoptic based on AIAA Paper 79-0278

**J80-167 Approximate Analysis of Axisymmetric Supersonic Base Flows with Injection.** J. A. Schetz, F. S. Billig and S. Favin, *Applied Physics Laboratory, John Hopkins University* (AIAAJ **18**, 8, p. 867) Synoptic

**J80-168 Computation of a Supersonic Flow Past an Axisymmetric Nozzle Boattail with Jet Exhaust.** Ameer G. Mikhail, *University of Dayton*; Wilber L. Hankey and Joseph S. Shang, *Air Force Flight Dynamics Laboratory* (AIAAJ **18**, 8, p. 869) Article based on AIAA Paper 78-993

**J80-169 Supersonic Base Flow Problem in Presence of an Exhaust Jet.** Bernhard Wagner and Robert A. White, *Dornier GmbH Friedrichshafen* (AIAAJ **18**, 8, p. 876) Article based on AIAA Paper 79-0133

**J80-170 Pseudo-Direct Solution to the Boundary-Layer Equations for Separated Flow.** Rimon Arieli and John D. Murphy, *NASA Ames Research Center* (AIAAJ **18**, 8, p. 883) Article based on AIAA Paper 79-0139

**J80-171 Analyses of Pressure Oscillations in an Open Cavity.** W. L. Hankey and J. S. Shang, *Air Force Flight Dynamics Laboratory* (AIAAJ **18**, 8, p. 892) Article based on AIAA Paper 79-0136

**J80-172 Effects of Inflow Distortion Profiles on Fan Tone Noise.** Hiroshi Kobayashi and John F. Groeneweg, *NASA Lewis Research Center* (AIAAJ **18**, 8, p. 899) Article based on AIAA Paper 79-0577

**J80-173 Experimental Investigations on Effectiveness, Heat Transfer Coefficient, and Turbulence of Film Cooling.** Shao-Yen Ko and Deng-Ying Liu, *Chinese Academy of Sciences* (AIAAJ **18**, 8, p. 907) Article based on AIAA Paper 79-7047

**J80-174 Measurements and Axisymmetric Model of Spatial Correlations in Turbulent Pipe Flow.** Y. A. Hassan, B. G. Jones and R. J. Adrian, *University of Illinois at Urbana-Champaign* (AIAAJ **18**, 8, p. 914) Article based on AIAA Paper 79-1562

**J80-175 Numerical Solution of Supersonic Laminar Flow over an Inclined Body of Revolution.** C. M. Hung, *NASA Ames Research Center* (AIAAJ **18**, 8, p. 921) Article based on AIAA Paper 79-1547

**J80-176 Navier-Stokes Solutions for Spin-Up in a Filled Cylinder.** Clarence W. Kitchens Jr., *U.S. Army Armament Research and Development Command* (AIAAJ **18**, 8, p. 929) Article based on AIAA Paper 79-1454 CP799

**J80-177 Karman Vortex Shedding and the Effect of Body Motion.** L. E. Ericsson, *Lockheed Missiles & Space Company, Inc.* (AIAAJ **18**, 8, p. 935) Article based on AIAA Paper 79-1531

**J80-178 Development and Structure of a Rectangular Jet in a Multiple Jet Configuration.** A Krothapalli, *University of Oklahoma*; D. Baganoff and K. Karamcheti, *Stanford University* (AIAAJ **18**, 8, p. 945) Article based on AIAA Paper 79-1548

**J80-179 Reformulation of Possio's Kernel with Application to Unsteady Wind Tunnel Interference.** Joseph A. Fromme and Michael A. Golberg, *University of Nevada* (AIAAJ **18**, 8, p. 951) Article

**J80-180 Chain Reaction cw HF Laser with Stationary Shock Initiation.** James P. Moran, Alan C. Stanton and R. Bruce Doak, *Aerodyne Research Inc.* (AIAAJ **18**, 8, p. 958) Article

**J80-181 Thermal Decomposition and Combustion Studies on Potassium Perchlorate/Polystyrene Propellant Systems.** K. Kishore, V.R. Pai Verneker and M. R. Sunitha, *Indian Institute of Science* (AIAAJ **18**, 8, p. 966) Synoptic

**J80-182 Analytical Model of High-Pressure Burning Rates in a Transient Environment.** Norman S. Cohen and Leon D. Strand, *Jet Propulsion Laboratory* (AIAAJ **18**, 8, p. 968) Article based on AIAA Paper 78-982

**J80-183 Transonic Axial Compressor using Laser Anemometry and Unsteady Pressure Measurements.** R.J. Dunker and H. G. Hungenberg, *Propulsion Institute, DFVLR, Cologne* (AIAAJ **18**, 8, p. 973) Article based on AIAA Paper 79-7034

**J80-184 Model for Double-Base Propellant Combustion.** M. W. Beckstead, *Brigham Young University* (AIAAJ **18**, 8, p. 980) Article

**J80-185 Elastic Constants for Superplastically Formed/Diffusion-Bonded Sandwich Structures.** William L. Ko, *NASA Dryden Flight Research Center* (AIAAJ **18**, 8, p. 986) Synoptic based on AIAA Paper 79-0756 CP794

**J80-186 Generalized Modal Shock Spectra Method for Spacecraft Loads Analysis.** M. Trubert and M. Salama, *California Institute of Technology* (AIAAJ **18**, 8, p. 988) Article based on AIAA Paper 79-0745 CP794

**J80-187 Modeling Nonlinear Deformation of Carbon-Carbon Composite Materials.** Robert M. Jones, *Southern Methodist University* (AIAAJ **18**, 8, p. 995) Article based on AIAA Paper 79-0774 CP794

**J80-188 Plasma Quench Investigations: Tungsten-Oxide Quenchants.** J. M. Madson, *McDonnell Douglas Corporation* (AIAAJ **18**, 8, p. 1002) Synoptic based on AIAA Paper 79-0253

**J80-189 Large Incidence Hypersonic Similitude and Oscillating Nonplanar Wedges.** Kunal Ghosh and Binoy Krishna Mistry, *Indian Institute of Technology* (AIAAJ **18**, 8, p. 1004) Technical Note

**J80-190 Flowfield Model for a Rectangular Planform Wing beyond Stall.** Allen E. Winkelmann and Jewel B. Barlow, *University of Maryland* (AIAAJ **18**, 8, p. 1006) Technical Note

**J80-191 Improved Version of LTRAN2 for Unsteady Transonic Flow Computations.** R. Houwink and J. van der Vooren, *National Aerospace Laboratory NLR* (AIAAJ **18**, 8, p. 1008) Technical Note based on AIAA Paper 79-1553

**J80-192 Review of the Influence of Cooled Walls on Boundary-Layer Transition.** J. Leith Potter, *Sverdrup/ARO, Inc.* (AIAAJ **18**, 8, p. 1010) Technical Note

**J80-193 Indicial Approach to Harmonic Perturbations in Transonic Flow.** D. E. Davies and Deborah J. Salmond, *Royal Aircraft Establishment* (AIAAJ **18**, 8, p. 1012) Technical Note

**J80-194 Asymptotic Features of Shock-Wave Boundary-Layer Interaction.** M. Y. Hussaini, B. S. Baldwin and R. W. MacCormack, *NASA Ames Research Center* (AIAAJ **18**, 8, p. 1014) Technical Note

**J80-195 Mach and Reynolds Number Effects on a Shock-Wave/Boundary-Layer Interaction.** G. G. Mateer and J. R. Viegas, *NASA Ames Research Center* (AIAAJ **18**, 8, p. 1016) Technical Note based on AIAA Paper 79-1502

**J80-196 Downwash Impingement.** B. N. Pamadi, *Indian Institute of Technology* (AIAAJ **18**, 8, p. 1018) Technical Note

**J80-197 Optimal Design of Ring Stiffened Cylindrical Shells Using Multiple Stiffener Sizes.** Michael Pappas and Jacob Moradi, *New Jersey Institute of Technology* (AIAAJ **18**, 8, p. 1020) Technical Note

**J80-199 Effect of Specific Heat Ratio on Two-Dimensional Transonic Aerodynamics.** Kemal Tuzla, David A. Russell and John C. Wai, *University of Washington* (AIAAJ **18**, 9, p. 1025) Synoptic based on AIAA Paper 76-1796

**J80-200 Determination of Forces on Arbitrary Concave Bodies in High- Speed Rarefied Gases.** C. R. Wimberly, *Montana State University* (AIAAJ **18**, 9, p. 1027) Synoptic

**J80-201 Stability of the Boundary Layer on a Swept Wing with Wall Cooling.** Spyridon G. Lekoudis, *Lockheed-Georgia Company* (AIAAJ **18**, 9, p. 1029) Article based on AIAA Paper 79-1495

**J80-202 Analytical Solution of Double-Mach Reflection.** G. Ben-Dor, *Ben-Gurion University of the Negev* (AIAAJ **18**, 9, p. 1036) Article

**J80-203 Turbulent Wake of a Thin, Flat Plate.** Irwin E. Alber, *Arete Associates* (AIAAJ **18**, 9, p. 1044) Article based on AIAA Paper 79-1545

**J80-204 Characteristics of a Mixing Layer of a Two-Dimensional Turbulent Jet.** S. Rajagopalan and R. A. Antonia, *The University of Newcastle* (AIAAJ **18**, 9, p. 1052) Article

**J80-205 Trailing-Edge Flows at High Reynolds Number.** P. R. Viswanath, J. W. Cleary, H. L. Seegmiller and C. C. Horstman, *NASA Ames Research Center* (AIAAJ **18**, 9, p. 1059) Article based on AIAA Paper 79-1503

**J80-206 Study of Viscous Crossflow Effects on Circular Cylinders at High Reynolds Numbers.** W. D. James, *Iowa State University*; S. W. Paris, *Boeing Aerospace Company*; and G. N. Malcolm, *NASA Ames Research Center* (AIAAJ **18**, 9, p. 1066) Article based on AIAA Paper 79-1477

**J80-207 Performance of a Vectorized Three-Dimensional Navier-Stokes Code on the CRAY-1 Computer.** J. S. Shang, W. L. Hankey, and M. C. Wirth, *Air Force Wright Aeronautical Laboratories*; and P. G. Buning, *University of Michigan*

(AIAAJ **18**, 9, p. 1073) Article based on AIAA Paper 79-1448 CP799

**J80-208 Technique for Developing Design Tools from the Analysis Methods of Computational Aerodynamics.** Warren H. Davis Jr., *Grumman Aerospace Corporation* (AIAAJ **18**, 9, p. 1080) Article based on AIAA Paper 79-1529

**J80-209 Numerical Simulation of Multistream Nozzle Flows.** K. M. Peery and C. K. Forester, *Boeing Aerospace Company* (AIAAJ **18**, 9, p. 1088) Article based on AIAA Paper 79-1549

**J80-210 Study of the Insulating Wall Boundary Layer in a Faraday MHD Generator.** Roy R. Rankin, Sidney A. Self and Robert H. Eustis, *Stanford University* (AIAAJ **18**, 9, p. 1094) Article

**J80-211 Ignition of Liquid Fuel Jets in a Supersonic Air Stream.** J. A. Schetz, S. C. Cannon and S. Baranovsky, *Virginia Polytechnic Institute and State University* (AIAAJ **18**, 9, p. 1101) Synoptic based on AIAA Paper 79-1238

**J80-212 Evolution of a Detonation Wave in a Cloud of Fuel Droplets: Part I. Influence of Igniting Explosion.** Shmuel Eidelman and Alexander Burcat, *Technion—Israel Institute of Technology* (AIAAJ **18**, 9, p. 1103) Article

**J80-213 Elastic-Plastic Analysis of Fatigue Crack Closure in Modes I and II.** M. Nakagaki and S. N. Atluri, *Georgia Institute of Technology* (AIAAJ **18**, 9, p. 1110) Article based on AIAA Paper 79-0758 CP794

**J80-214 Coupled Rotor/Tower Aeroelastic Analysis of Large Horizontal Axis Wind Turbines.** William Warmbrodt, *NASA Ames Research Center*; and Peretz Friedmann, *University of California* (AIAAJ **18**, 9, p. 1118) Article based on AIAA Paper 79-0732 CP794

**J80-215 Assumed Stress Finite Element Analysis of Through-Cracks in Angle-Ply Laminates.** T. Nishioka and S. N. Atluri, *Georgia Institute of Technology* (AIAAJ **18**, 9, p. 1125) Article based on AIAA Paper 79-0801 CP794

**J80-216 Saturation Effects on Stagnation Radiative Heating for the Jupiter Probe.** H. F. Nelson, *University of Missouri-Rolla* (AIAAJ **18**, 9, p. 1133) Article

**J80-217 Aerothermodynamic Aspects of an Axisymmetric Resonance Tube.** C. E. G. Przirembel, *Rutgers University* (AIAAJ **18**, 9, p. 1141) Technical Note based on AIAA Paper 78-859

**J80-218 Steady Oblique Shock-Wave Reflections in Perfect and Imperfect Monatomic and Diatomic Gases.** G. Ben-Dor, *Ben-Gurion University of the Negev* (AIAAJ **18**, 9, p. 1143) Technical Note

**J80-219 Response of Duffing Oscillator to One Half-Cycle Sine Pulse.** H. R. Srirangarajan, *Aeronautical Development Establishment* (AIAAJ **18**, 9, p. 1145) Technical Note

**J80-220 Low-Frequency and Small Perturbation Equation for Transonic Flow Past Wings.** S. K. Chakrabartty and N. R. Subramanian, *National Aeronautical Laboratory* (AIAAJ **18**, 9, p. 1147) Technical Note

**J80-221 Similarity Rule for Sidewall Boundary-Layer Effect in Two-Dimensional Wind Tunnels.** Richard W. Barnwell, *NASA Langley Research Center* (AIAAJ **18**, 9, p. 1149) Technical Note based on AIAA Paper 79-0108

**J80-222 Improved Orthogonality Check for Measured Modes.** Alex Berman, *Kaman Aerospace Corporation* (AIAAJ **18**, 9, p. 1151) Technical Note

**J80-223 Shock-Free Wing Design.** K-Y. Fung, H. Sobieczky and R. Seebass, *University of Arizona* (AIAAJ **18**, 10, p. 1153) Article based on AIAA Paper 79-1557

**J80-224 Transonic Flutter Analysis of a Rectangular Wing with Conventional Airfoil Sections.** F. E. Eastep and J. J. Olsen, *Air Force Flight Dynamics Laboratory* (AIAAJ **18**, 10, p. 1159) Article based on AIAA Paper 79-1632 CP7911

**J80-225 Multilevel Adaptive Computations in Fluid Dynamics.** Achi Brandt, *The Weizmann Institute of Science* (AIAAJ **18**, 10, p. 1165) Survey Paper based on AIAA Paper 79-1455 CP799

**J80-226 Measurements of Unsteady Vortex Flowfields.** F. K. Owen, *Palo Alto, Calif.*; and D. A. Johnson, *NASA Ames Research Center* (AIAAJ **18**, 10, p. 1173) Article based on AIAA Paper 78-18

**J80-227 Harmonic Linearization Method for High-Intensity Sound in Two-Dimensional Lined Ducts.** Morgan S. Tsai, *Boeing Commercial Airplane Company* (AIAAJ **18**, 10, p. 1180) Article based on AIAA Paper 79-0621

**J80-228 Adverse Pressure Gradient Effects on Supersonic Boundary-Layer Turbulence.** A. J. Laderman, *Ford Aerospace & Communications Corporation* (AIAAJ **18**, 10, p. 1186) Article based on AIAA Paper 79-1563

**J80-229 Prediction of Two- and Three-Dimensional Asymmetrical Turbulent Wakes, Including Curvature and Rotation Effects.** C. Hah and B. Lakshminarayana, *The Pennsylvania State University* (AIAAJ **18**, 10, p. 1196) Article based on AIAA Paper 79-1561

**J80-230 Adaptive Grid Method for Problems in Fluid Mechanics and Heat Transfer.** H. A. Dwyer, *University of California*; R. J. Kee and B. R. Sanders, *Sandia Laboratories* (AIAAJ **18**, 10, p. 1205) Article based on AIAA Paper 79-1464 CP799

**J80-231 Helicoidal Surface Theory for Harmonic Noise of Propellers in the Far Field.** Donald B. Hanson, *United Technologies Corporation* (AIAAJ **18**, 10, p. 1213) Article based on AIAA Paper 79-0609

**J80-232 Kinetics of a $CO_2$ Nuclear Pumped Laser.** H. A. Hassan, *North Carolina State University* (AIAAJ **18**, 10, p. 1221) Synoptic based on AIAA Paper 79-1566

**J80-233 Modeling of a cw Chemical Laser with Annular Unstable Resonator.** Tien Tsai Yang, *Rockwell International* (AIAAJ **18**, 10, p. 1223) Article based on AIAA Paper 79-1490

**J80-234 Evolution of a Detonation Wave in a Cloud of Fuel Droplets: Part II. Influence of Fuel Droplets.** Alexander Burcat and Shmuel Eidelman, *Technion—Israel Institute of Technology* (AIAAJ **18**, 10, p. 1233) Article

**J80-235 Stresses in Double-Lap Joints Bonded with a Viscoelastic Adhesive: Part I. Theory and Experimental Corroboration.** Joyanto K. Sen, *Hindustan Aeronautics Ltd.*; and Robert M. Jones, *Southern Methodist University* (AIAAJ **18**, 10, p. 1237) Article

**J80-236 Flutter Analysis of Missile Control Surfaces Containing Structural Nonlinearities.** Robert M. Laurenson and Robert M. Trn, *McDonnell Douglas Astronautics Company* (AIAAJ **18**, 10, p. 1245) Article based on AIAA Paper 79-0796 CP794

**J80-237 Structural Synthesis by Combining Approximation Concepts and Dual Methods.** Lucien A. Schmit and Claude Fleury, *University of California* (AIAAJ **18**, 10, p. 1252) Article based on AIAA Paper 79-0721 CP794

**J80-238 Heat Flow Through Conical Constrictions.** Chakravarti Varadachar Madhusudana, *The University of New South Wales* (AIAAJ **18**, 10, p. 1261) Synoptic based on AIAA Paper 79-1071

**J80-239 High Mach Number Dynamic Stability of Pointed Cones at Small Angles of Attack.** M. Khalid and R. A. East, *University of Southampton* (AIAAJ **18**, 10, p. 1263) Technical Note

**J80-240 Lifting and Nonlifting Kernel Functions for Cascade and Isolated Airfoils.** M.R. Chi, *Pratt & Whitney Aircraft* (AIAAJ **18**, 10, p. 1265) Technical Note

**J80-241 Modeling the Plasma Near-Wakes.** V. C. Liu and S. J. Ying, *The University of Michigan* (AIAAJ **18**, 10, p. 1268) Technical Note

**J80-242 Marker Particle Velocity Perturbations in Compressible Flows over a Wavy Wall.** G. D. Catalano, *Air Force Flight Dynamics Lab* (AIAAJ **18**, 10, p. 1270) Technical Note

**J80-243 Sullivan's Two-Celled Vortex.** Fred W. Leslie and John T. Snow, *Purdue University* (AIAAJ **18**, 10, p. 1272) Technical Note

**J80-244 Stiffness Matrix Correction from Incomplete Test Data.** Fu-Shang Wei, *Kaman Aerospace Corporation* (AIAAJ **18**, 10, p. 1274) Technical Note

**J80-245 Influence of Nonlinear Adhesive Behavior on Analysis of Cracked Adhesively Bonded Structures.** M. M. Ratwani and H. P. Kan, *Northrop Corporation* (AIAAJ **18**, 10, p. 1275) Technical Note

**J80-250 Progress in Finite-Volume Calculations for Wing-Fuselage Combinations.** D. A. Caughey, *Cornell University*; and Antony Jameson, *New York University* (AIAAJ **18**, 11, p. 1281) Article based on AIAA Paper 79-1513

**J80-251 Symmetric Body Vortex Wake Characteristics in Supersonic Flow.** William L. Oberkampf and Timothy J. Bartel, *The University of Texas at Austin* (AIAAJ **18**, 11, p. 1289) Article based on AIAA Paper 78-1337 CP786

**J80-252 Interaction of Weak Shock Waves with Screens and Honeycombs.** Kwok-On Tong, Charles J. Knight and B. N. Srivastava, *Avco Everett Reseach Laboratory, Inc.* (AIAAJ **18**, 11, p. 1298) Article based on AIAA Paper 79-0210

**J80-253 Transonic Shock-Wave/Boundary-Layer Interactions on an Oscillating Airfoil.** Sanford S. Davis and Gerald N. Malcolm, *NASA Ames Research Center* (AIAAJ **18**, 11, p. 1306) Article based on AIAA Paper 79-0769 CP794

**J80-254 Influence of Propeller Design Parameters on Far-Field harmonic Noise in Forward Flight.** Donald B. Hanson, *Hamilton Standard Division, United Technologies Corporation* (AIAAJ **18**, 11, p. 1313) Article based on AIAA Paper 79-0609

**J80-255 Three-Layer Interactive Method for Computing Supersonic Laminar Separated Flows.** Julius Brandeis and Josef Rom, *Technion-Israel Institute of Technology* (AIAAJ **18**, 11, p. 1320) Article

**J80-256 Two-Phase Mach Number Description for Equilibrium Duct Flow of Nitrogen.** J. W. Bursik, *Rensselaer Polytechnic Institute*; Hall R. M. and J. B. Adcock, *NASA Langley Research Center* (AIAAJ **18**, 11, p. 1328) Article based on AIAA Paper 79-1051

**J80-257 Decay of Transverse Acoustic Waves in a Pulsed Gas Laser.** Vijay A. Kulkarny, *TRW DSSG* (AIAAJ **18**, 11, p. 1336) Article

**J80-258 Improved Sensing Element for Skin-Friction Balance Measurements.** Jerry M. Allen, *NASA Langley Research Center* (AIAAJ **18**, 11, p. 1342) Article based on AIAA Paper 80-0049

**J80-259 Aerothermochemical Analysis of Erosive Burning in a Laboratory Solid-Rocket Motor.** Robert A. Beddini, *Aeronautical Research Associates of Princeton, Inc.* (AIAAJ **18**, 11, p. 1346) Article based on AIAA Paper 78-977

**J80-260 Turbulence Characteristics in the Near Wake of a Compressor Rotor Blade.** B. Lakshminarayana and B. Reynolds, *The Pennsylvania State University* (AIAAJ **18**, 11, p. 1354) Article based on AIAA Paper 79-0280

**J80-261 Convective Ignition of Propellant Cylinders in a Developing Flowfield.** Avi Birk and Leonard H. Caverny, *Princeton University* (AIAAJ **18**, 11, p. 1363) Article

**J80-262 Static Strength Prediction of Bolted Joint in Composite Material.** B. L. Agarwal, *Northrop Corporation* (AIAAJ **18**, 11, p. 1371) Article based on AIAA Paper 79-0798 CP794

**J80-263 Stresses in Double-Lap Joints Bonded with a Viscoelastic Adhesive: Part II. Parametric Study and Joint Design.** Joyanto K. Sen, *Hindustan Aeronautics Limited*; and Robert M. Jones, *Southern Methodist University* (AIAAJ **18**, 11, p. 1376) Article

**J80-264 Slag and Other Liquid Behavior on Vertical Surface at Near-Freezing Temperature.** Kwan H. Im, *Argonne National Laboratory*; and Paul M. Chung, *University of Illinois at Chicago Circle* (AIAAJ **18**, 11, p. 1383) Article

**J80-265 Propagation of Supersonic Fan Noise in a Nonuniform Medium.** Morgan S. Tsai, *The Boeing Commercial Airplane Company* (AIAAJ **18**, 11, p. 1390) Technical Note based on AIAA Paper 79-0639

**J80-266 Direct and Inverse Calculation of the Laminar Boundary-Layer Solution.** Pascal L. Ardonceau and Thierry Alziary de Roquefort, *Centre d'Etudes Aerodynamiques et Thermiques* (AIAAJ **18**, 11, p. 1392) Technical Note

**J80-267 Turbulent Boundary-Layer Calculations in Adverse Pressure Gradient Flows.** C. E. Jobe and W. L. Hankey, *Air Force Flight Dynamics Laboratory* (AIAAJ **18**, 11, p. 1394) Technical Note based on AIAA Paper 80-0136

**J80-268 Limiting Particle Streamline of Gas Particle Mixtures in Axially Symmetric Nozzles.** R. Ishii, *Kyoto University*; and K. Kawasaki, *Nissan Motor Company, Limited* (AIAAJ **18**, 11, p. 1397) Technical Note

**J80-269 Flow near the Intersection of a Wall and Multiple Dividing Streamlines.** Arthur Rubel, *Grumman Aerospace Corporation* (AIAAJ **18**, 11, p. 1400) Technical Note

**J80-270 Approximate Calculation of Vortex Trajectories of Slender Bodies at Incidence.** D. Weihs, *Technion-Israel Institute of Technology* (AIAAJ **18**, 11, p. 1402) Technical Note

**J80-271 Action of Transition Metal Oxides on Composite Solid Propellants.** K. Kishore, V. R. Pai Verneker and M. R. Sunitha, *Indian Institute of Science* (AIAAJ **18**, 11, p. 1404) Technical Note

**J80-276 Navier-Stokes Solution of the Turbulent Flowfield about an Isolated Airfoil.** S. J. Shamroth and H. J. Gibeling, *Scientific Research Associates, Inc.* (AIAAJ **18**, 12, p. 1409) Synoptic based on AIAA Paper 79-1543

**J80-277 Numerical Solution of the Azimuthal-Invariant Thin-Layer Navier-Stokes Equations.** C. J. Nietubicz, *U.S. Army Ballistic Research Laboratory*; T. H. Pulliam, *NASA Ames Research Center*; and J. L. Steger, *Flow Simulations, Inc.* (AIAAJ **18**, 12, p. 1411) Synoptic based on AIAA Paper 79-0010

**J80-278 Flow in Streamwise Corners of Arbitrary Angle.** W. H. Barclay and A. H. Ridha, *University College* (AIAAJ **18**, 12, p. 1413) Article

**J80-279 Flow Computations in Inlets at Incidence Using a Shock Fitting Bicharacteristic Method.** Joseph Vadyak, and Joe D. Hoffman, *Purdue University*; and Allan R. Bishop, *NASA Lewis Research Center* (AIAAJ **18**, 12, p. 1495) Article based on AIAA Paper 79-0379

**J80-280 Numerical Simulation of Steady Supersonic Viscous Flow.** Lewis B. Schiff and Joseph L. Steger, *NASA Ames Research Center* (AIAAJ **18**, 12, p. 1421) Article based on AIAA Paper 79-0130

**J80-281 Fast, Conservative Algorithm for Solving the Transonic Full-Potential Equation.** Terry L. Holst, *NASA Ames Research Center* (AIAAJ **18**, 12, p. 1431) Article based on AIAA Paper 79-1456 CP799

**J80-282 Numerical Simulation of Near Wakes Utilizing a Relaxation Turbulence Model.** J. D. Waskiewicz, J. S. Shang and W. L. Hankey, *Air Force Flight Dynamics Laboratory* (AIAAJ **18**, 12, p. 1440) Article based on AIAA Paper 79-0148

**J80-283 Acoustic Resonances and Sound Scattering by a Shear Layer.** S. P. Koutsoyannis and K. Karamcheti, *Stanford University*; and D. C. Galant, *NASA Ames Research Center* (AIAAJ **18**, 12, p. 1446) Article based on AIAA Paper 79-0627

**J80-285 One-and Two-Phase Nozzle Flows.** I. Shih Chang, *The Aerospace Corporation* (AIAAJ **18**, 12, p. 1455) Article based on AIAA Paper 80-0272

**J80-286 The Turbulence Structure in the Axisymmetric Free Mixing Layer.** A. K. M. F. Hussain and Z. D. Husain, *University of Houston* (AIAAJ **18**, 12, p. 1462) Article

**J80-287 Time-Dependent Difference Theory for Noise Propagation in a Two-Dimensional Duct.** Kenneth J. Baumeister, *NASA Lewis Research Center* (AIAAJ **18**, 12, p. 1470) Article based on AIAA Paper 80-0098

**J80-288 Investigation of a Three-Dimensional Shock Wave Separated Turbulent Boundary Layer.** M. I. Kussoy, J. R. Viegas and C. C. Horstman, *NASA Ames Research Center* (AIAAJ **18**, 12, p. 1477) Article based on AIAA Paper 80-0002

**J80-289 Comparison of Methods for Prediction of Transition by Stability Analysis.** Mujeeb R. Malik, *Systems and Applied Sciences Corp.*; and Steven A. Orszag, *Massachusetts Institute of Technology* (AIAAJ **18**, 12, p. 1485) Article based on AIAA Paper 80-1375

**J80-290 Analysis of the $UF_6$-Xe Direct Nuclear-Pumped Laser.** H. A. Hassan, *North Carolina State University* (AIAAJ **18**, 12, p. 1490) Article based on AIAA Paper 80-0095

**J80-291 Calculation of the Flow Properties of a Confined Kerosene-Spray Flame.** Y. El Banhawy and J. H. Whitelaw, *Imperial College of Science and Technology* (AIAAJ **18**, 12, p. 1503) Article based on AIAA Paper 79-7020

**J80-293 Differential and Difference Sensitivities of Natural Frequencies and Mode Shapes of Mechanical Structures.** Patrick Vanhonacker, *University of Leuven* (AIAAJ **18**, 12, p. 1511) Article

**J80-294 Discrete-Continuous Variable Structural Synthesis using Dual Methods.** Lucien A. Schmit and Claude Fleury, *University of California* (AIAAJ **18**, 12, p. 1515) Article

**J80-295 Effect of Load Sequence on the Statistical Fatigue of Composites.** J. N. Yang and D. L. Jones, *The George Washington University* (AIAAJ **18**, 12, p. 1525) Article based on AIAA Paper 79-0760 CP794

**J80-296 Further Observations on the Strained Coordinate Method for Transonic Flows.** David Nixon and Samuel C. McIntosh Jr., *Nielsen Engineering and Research, Inc.* (AIAAJ **18**, 12, p. 1540) Technical Note

**J80-297 Instantaneous Velocity Measurements in a Periodically Pulsed Plane Turbulent Jet.** J. C. S. Lai and J. M. Simmons, *University of Queensland* (AIAAJ **18**, 12, p. 1532) Technical Note

**J80-298 Numerical Solutions of Transonic Flows By Parametric Differentiation and Integral Equation Techniques.** Nithiam T. Sivaneri and Wesley L. Harris, *Massachusetts Institute of Technology* (AIAAJ **18**, 12, p. 1534) Technical Note

**J80-299 Visualization of Flow Instabilities on a Rotating Disk.** Mark H. Clarkson, *University of Florida*; Stanley C. Chin, *Martin Marietta Aerospace*; and Phillip Shacter, *McDonnell Aircraft Company* (AIAAJ **18**, 12, p. 1541) Technical Note based on AIAA Paper 80-0279

**J80-300 Separation of Laminar Boundary Layer Induced by Aerodynamic Interference.** Eugene E. Covert, *Massachusetts Institute of Technology* (AIAAJ **18**, 12, p. 1537) Technical Note

**J80-301 Sound Radiation From Ducts: Comparison of Admittance Values.** W. L. Meyer, W. A. Bell and B. T. Zinn, *Georgia Institute of Technology* (AIAAJ **18**, 12, p. 1538) Technical Note

**J80-302 Thin-Layer Approximation for Three-Dimensional Supersonic Corner Flows.** C. M. Hung and Seth S. Kurasaki, *NASA Ames Research Center* (AIAAJ **18**, 12, p. 1544) Technical Note

# The latest advances in technology are found in the AIAA Selected Reprint Series

The Selected Reprint Series volumes present the most up-to-date, state-of-the-art information on scientific and engineering subjects. With more immediacy than a textbook, but with more perspective than the latest proceedings, each AIAA Selected Reprint Series volume serves not only as an introduction to a particular field, but brings the professional up-to-date with the latest technology on a particular subject.

Professionals draw invaluable information from the Reprint Series, such as the most significant advances in the field, bibliographies, and an overview of the subject.

*Send order with remittance to:*
*American Institute of Aeronautics and Astronautics*
*1290 Avenue of the Americas*
*New York, New York 10019*

**VOLUMES AND EDITORS**

**II**
**MAGNETO FLUID DYNAMICS**
W.R. Sears
*$2.50 Mem. & List*

**III**
**ION PROPULSION**
A.T. Forrester and G. Kuskevics
*$2.50 Mem. & List*

**V**
**AERODYNAMIC FLUTTER**
I.E. Garrick
*$3.50 Mem. & List*

**VII**
**RADIATIVE GAS DYNAMICS**
R.J. Goulard
*$2.50 Mem. & List*

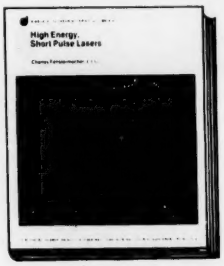
**XI**
**AERODYNAMIC NOISE**
A. Goldburg
*$2.50 Mem. & List*

**XIV**
**TURBULENCE TRANSPORT MODELING**
F.H. Harlow
*$3.00 Mem. & List*

**XVI**
**HEAT PIPES**
C-L. Tien
*$3.00 Mem. & List*

**XVII**
**FINITE ELEMENT METHODS IN STRUCTURAL DYNAMICS**
T.H.H. Pian
*$7.00 Mem. $9.00 List*

**XVIII**
**SATELLITE COMMUNICATIONS SYSTEMS**
I. Kadar
*$9.50 Mem. $12.50 List*

**XIX**
**HIGH ENERGY, SHORT PULSE LASERS**
C. Fenstermacher
*$9.50 Mem. $14.00 List*

# AIAA Selected Reprint Series offers invaluable professional information